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Caterpillar Inc. warrants **all products** sold, against defects in workmanship or materials under normal use, for **Six Months** after date of purchase, **unless otherwise stated**.

Brake and Steering Systems

Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and Assembly

Motor Grader Controls,
Cable Control and Winch

Loader Lift Arm and
Excavator Implement

Implements, Frame,
Hitch and Suspension

5B-3032 Brake and Clutch Adjusting Tool

SMCS Code: 3058-025

Model: See Below

Warranty: Six Months

- Used to adjust brakes and flywheel clutches on earlier motor graders and to adjust flywheel clutches on DW10, DW15, DW20 and DW21 Tractors



242-0992 Brake Gauge

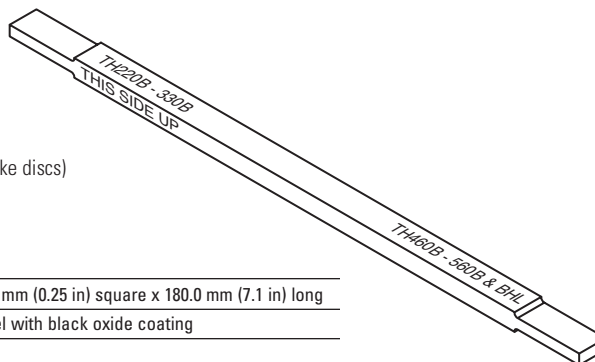
SMCS Code: 4250-082, 0763

Model: TH103 Telehandler, B-Series Telehandlers,
and Backhoe Loaders

Warranty: Six Months

- Used to check brake disc wear (checks minimum thickness between brake discs)
- Easily determines if replacement is needed (if gauge fits between brake discs, they do not require replacement)
- Gauge is inserted through axle housing inspection port
- Stamped with "This Side Up" to eliminate issue of the gauge

Overall size	6.35 mm (0.25 in) square x 180.0 mm (7.1 in) long
Material	Steel with black oxide coating



273-3148 Brake Purge Group

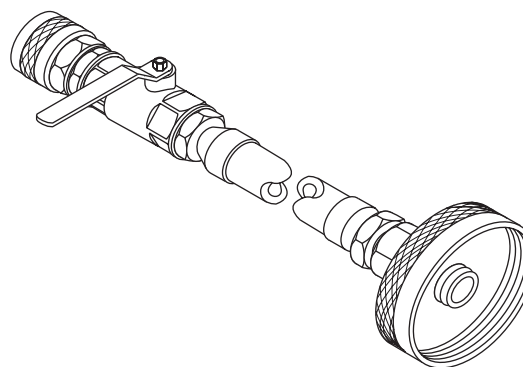
SMCS Code: 4257

Model: TH210 (CEC1-Up, MHT1-Up), TH215 (CEG1-Up, MHS1-Up) Telehandler

Essential Tool

Warranty: Six Months

- Used to purge air from auxiliary brake line for trailers, implements, and other similar types of equipment



5S-9925 Brake Adjusting Tool

SMCS Code: 4250-025

Model: 12F, 14, 112E, 112F and 120 Motor Graders

Warranty: Six Months

- Used to adjust brakes



7S-6704 Spring Compressor Assembly

SMCS Code: 4262-017

Model: 623E

Warranty: Six Months

- Used for the assembly and disassembly of spring-actuated emergency and parking brake air chamber mechanisms
- Prevents the spring jumping out when the brake chamber is being worked on
- Use with FT0586 Holding Tool
- Material: SAE 1020 Steel
- Assembly includes all items in figure



Brake and
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Hydraulic Component
Disassembly and AssemblyMotor Grader Controls,
Cable Control and WinchLoader Lift Arm and
Excavator ImplementImplements, Frame,
Hitch and Suspension

9X-2233 Plug

SMCS Code: 4322-036
Model: 206 Excavator and 212 Excavator
Warranty: Six Months

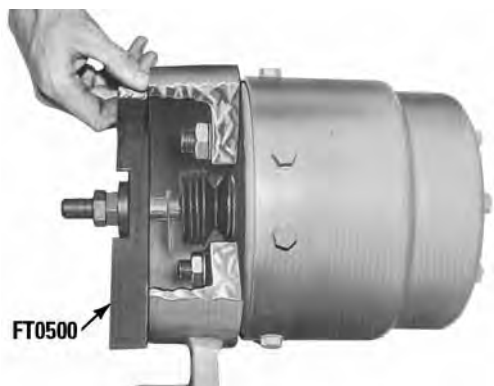
*This article has changed
since the printing of the 2009
Dealer Service Tools Catalog.*

- Used to block line between steering pump and steering valve during pressure checks and adjustments of steering pump relief valve
- Make pressure check quick and easy
- Usually not obtainable locally

FT0500 Brake Chamber Adjustment
Gauge

SMCS Code: 4262-025
Model: 769 Truck
Warranty: None

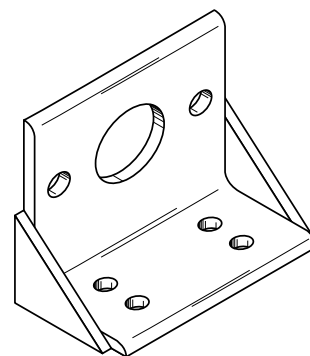
- Used to adjust air chambers
- Material: SAE 1018 Steel



FT0586 Holding Tool

SMCS Code: 4262-017
Model: Earlier Motor Graders
Warranty: None

- Used to hold air brake chambers while being assembled or disassembled



253-0987 Brake Bleeder

SMCS Code: 4251-025
Model: B Series Telehandlers
Essential Tool
Warranty: Six Months

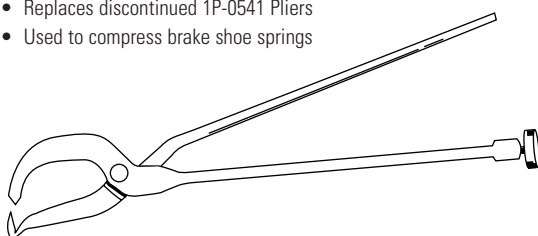
- Allows brake system to be bled by one person
- Requires two 132-3056 O-ring Seals (provided) when used with hydraulic oil
- Features a self-contained, hand-pressurized pump, more than 3 m (10 ft) hose with a shutoff, pressure gauge, and quick coupler for use with other brake bleeder adapters to provide easy hookup to brake bleeder valves
- Capacity: 4 L (1 gal)



9U-6265 Pliers

SMCS Code: 4253-010, 0603
Warranty: Six Months

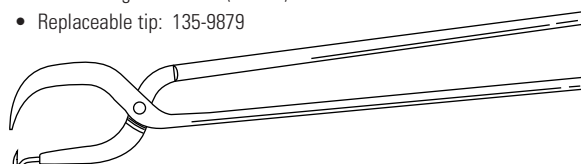
- Replaces discontinued 1P-0541 Pliers
- Used to compress brake shoe springs



135-9811 Brake Spring Pliers

SMCS Code: 4253-010
Model: M312 Wheeled Excavators
Warranty: Six Months

- Used to remove and install extra-heavy brake springs
- Replaceable tip ensures long tool life
- Overall length: 66.0 cm (26.0 in)
- Replaceable tip: 135-9879



FT0502 Retainer Compressor

SMCS Code: 4250-012
Model: 769 Truck
Warranty: None

- Used on rear wheel brakes to compress floating Duo-Cone seal retainers into seals far enough to allow retaining ring to be installed
- Material: SAE 1020 Steel



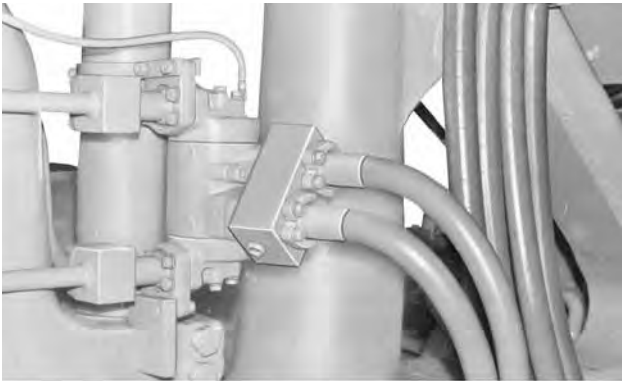
Steering Lines Adapter Tools

SMCS Code: 4302-552
Model: 631B, 641, 651 and 657 Tractors
Warranty: Six Months

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

- Used on tractors with steering swivel joints
- Makes it possible to tow a tractor-scraper unit with tractor wheels on lowboy and scraper wheels on the ground
- A junction block (part of steering lines adapter group) is bolted to swivel joint with steering cylinder lines bolted to junction block; junction block permits hydraulic steering oil to flow freely between steering cylinders

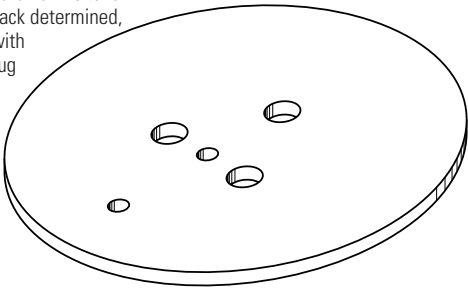
Part No.	Description	Qty.
1B-5174	Plug	
—	Block	
4F-7226	Bolt	4
3B-4507	Lock Washer	8
3H-5368	Bolt	4
4J-0522	Seal (not shown)	4



FT2557 Gauge Plate

SMCS Code: 4314-016
Model: PS150 and PS250
Warranty: None

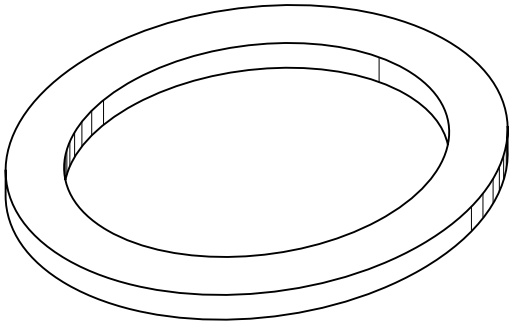
- Used to provide access for measuring shim pack thickness between plate and king pin
- 123-4588 Plate should be removed from machine and modified by adding a 1/8-12 NPTF threaded hole
- After measurement is taken and shim pack determined, plug hole with 6V-2766 Plug and reuse plate on machine



FT0510 Ring

SMCS Code: 4301-016
Model: 12, 14 Motor Graders; DW15, DW20 and 630A Tractors
Warranty: None

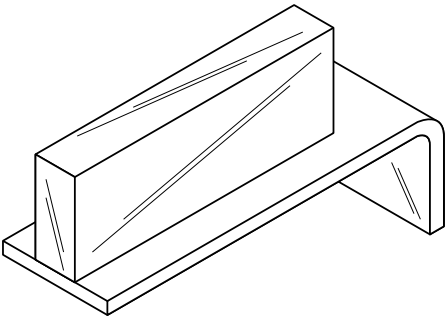
- Used to keep centering springs in steering gear control valve compressed while being assembled



FT0508 Block

SMCS Code: 4322-036
Model: 950, 966, 980 and 988 Loaders; 824 and 834 Tractors
Warranty: None

- Used to check relief valve pressure by preventing machine from continuing its turn



Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

Implements, Frame, Hitch and Suspension

Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

Implements, Frame, Hitch and Suspension

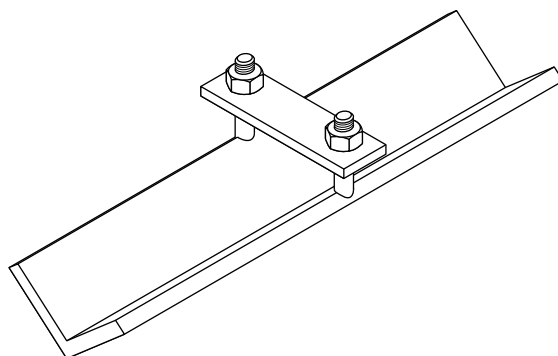
FT0509 Steering Cylinder Block

SMCS Code: 4303-009

Model: Articulated Wheel Loaders

Warranty: None

- Prevents machine from turning while service work is being performed
- Attach this block to steering cylinders on articulated wheel loaders that are not equipped with safety links



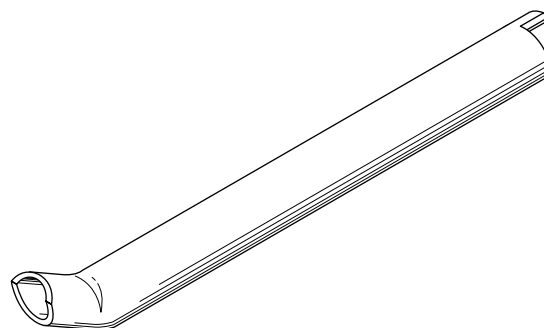
FT0918 Brake Spring Tool

SMCS Code: 4253-010

Model: 621, 627, 631C, 633C, 637, 641, 650B, 651B, 657B, 660B, and 666B Tractor-Scrapers

Warranty: None

- Used for brake spring removal and installation
- Tang end used to lift spring hook out of brake shoe pin groove; other end shaped to engage spring hook and guide it over pin
- Material: SAE 1020 Steel



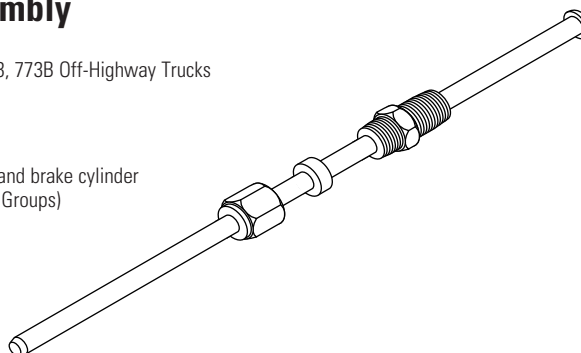
1U-9360 Displacement Gauge Assembly

SMCS Code: 4258-082, 4262-082

Model: 768B, 768C, 772, 772B Track-Type Tractors, 769B, 769C, 773, 773B Off-Highway Trucks

Warranty: Six Months

- Formerly available as FT1097; inventoried due to dealer interest
- Used to measure and check piston movement in master cylinder and brake cylinder on the models listed above (9J-1254 and 9J-1255 Brake Cylinder Groups)
- Movement indicates leaking seals on pistons
- Assembly includes all items in figure



References

SENR2940, Service Manual

SENR2960, Service Manual

SENR4763, Service Manual

SENR7868, Service Manual

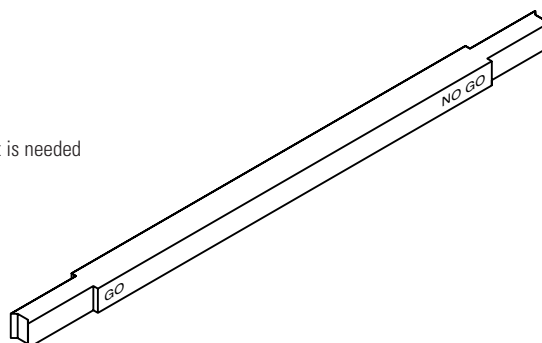
FT2504 Brake Gauge

SMCS Code: 4250-082, 0763

Model: TH62, TH63, TH82, and TH83 Telescopic Material Handler

Warranty: None

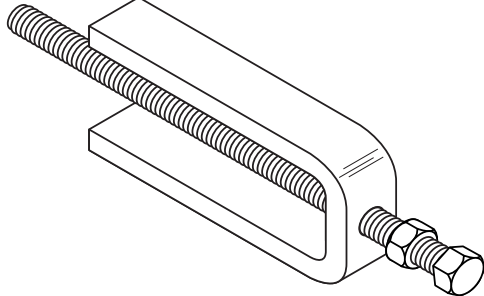
- Used to check brake disk wear and determine whether disk replacement is needed
- Checks for minimum thickness between brake disks
- Gauge is inserted through inspection port in axle housing
- Can be made from 6.4 mm (0.25 in) square bar or key stock
- Material: SAE 1018 Steel



FT1048 Brake Anchor Pin Puller

SMCS Code: 4254-010
Model: IT12, 910, 920, 930
Warranty: None

- Used to pull back brake anchor pins when replacing wheel brake friction pads
- Material: SAE 1020 Steel



FT1183 Brake Piston Retainer Tool

SMCS Code: 4250-036
Model: 769B, 773, 768B and 772 Trucks
Warranty: None

- Used to pressure check brake piston seals before assembling wheels
- Retain brake piston in cylinder while seals are checked with air pressure to 10,5 kg/cm² (150 PSI)
- Seals can also be pressure checked in event that wheel assembly is performed on truck



5P-7428 Bearing Puller Adapter

SMCS Code: 6119-010, 4305-010
Model: 613B Scraper
Warranty: Six Months

- Used with 9S-5559 Stud and 6V-3160 Hydraulic Puller to remove 7J-6862 Steering Link Bushing from draft frame

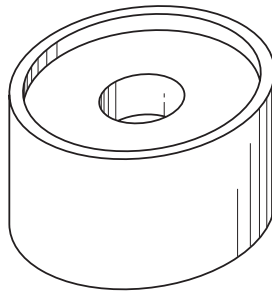


Typical Puller Adapter

FT1324 Spring Seat

SMCS Code: 4250-017
Model: 769B Truck
Warranty: None

- Used with 5S-1330 Compressor and **discontinued** 5S-1326 Adapter to compress rear brake piston retraction springs
- Makes operation easy and safe
- Material: SAE 1020 Steel

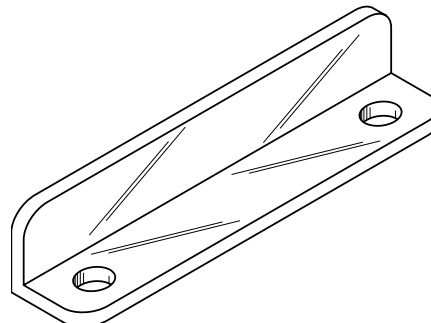


This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

FT1416 Brake Hub Retainer

SMCS Code: 4267-010
Model: 769C Truck
Warranty: None

- Required for installation of brake assembly on rear axle (2 required)
- With retainers holding brake hub firmly against brake housing, brake discs are properly centered on splines of inner brake hub
- Necessary to center hub for subsequent installation of wheel which must align with splines on hub and axle housing at the same time



Brake and
Steering Systems

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Cable Control and Winch

Loader Lift Arm and
Excavator Implement

Implements, Frame,
Hitch and Suspension

Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and AssemblyMotor Grader Controls,
Cable Control and WinchLoader Lift Arm and
Excavator ImplementImplements, Frame,
Hitch and Suspension

5P-9726 Plug Gauge

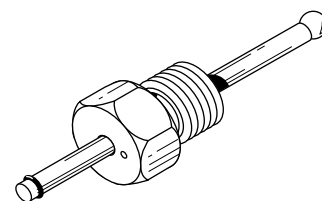
SMCS Code: 4250-038

Model: 772B, 773B, 777, 785, 789

Warranty: Six Months

- Used to check brake disc wear on service brakes
- Installed stack height of brake disc pack is measured with brake piston in applied and retracted positions; if difference between the two measurements is 14.07 mm (0.554 in) or more, brake discs should be replaced
- Installed in place of the top 9D-6125 Brake Bleeder Screw Adapter
- Can be used with 1U-7425 Displacement Gauge Assembly for measurement reading
- Service part: 6V-5722 O-ring Seal

NOTE: A measurement of installed stack height of brake disc pack should be taken and recorded with brakes applied after new discs have been “run in”. Measurements should again be taken at prescribed intervals. If difference between initial and subsequent measurements exceed machine specifications, the brake discs should be replaced.



Overall length	70.0 mm (2.75 in)
Hex size	25.4 mm (1.0 in)
Thread size	7/8-14

251-6568 Brake Adjuster Assembly

SMCS Code: 4261-025

Model: 735 Articulated Truck (SN# AWR451-UP)

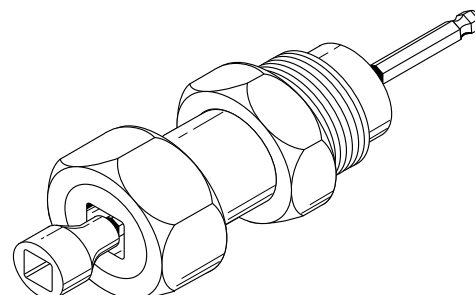
740 Articulated Truck (SN# AXM856-UP)

740 Articulated Ejector Truck (SN# AZZ294-UP)

Essential Tool

Warranty: Six Months

- Replaces 221-2589 Brake Adjuster Assembly
- Used to simultaneously adjust check nut and adjuster screw on service brakes
- Used with 1½ inch wrench and 3/8 inch square drive ratchet
- Use only on trucks with mechanical slack adjusters (not for use on hydraulically operated slack adjusters)
- Use a 1½ inch wrench to remove plug from service brake, install adapter, and rotate socket
- Use a 3/8 inch drive ratchet to turn 6 mm ball socket hex bit
- Designed to keep socket and hex bit perfectly aligned during adjustment procedure
- Assembly includes all items in figure

**References**

735/740 Articulated Truck Disassembly and Assembly Manual

735/740 Articulated Truck, Brake System Module, in Machine Systems Test and Adjusting

160-1726 Gauge Plug

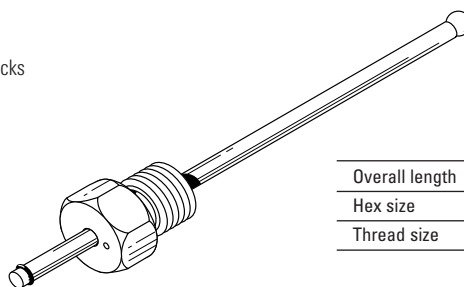
SMCS Code: 7473-040

Model: D350E/D400E Articulated Trucks (ADT), 797 Off-Highway Trucks

Essential Tool

Warranty: Six Months

- Used to check brake disc wear on service brakes
- May be used with 1U-7425 Displacement Gauge Assembly for measurement reading
- Installed in place of brake inspection plug
- Service part: 6V-5722 O-ring Seal



Overall length	158.0 mm (6.22 in)
Hex size	25.4 mm (1.0 in)
Thread size	7/8-14

NOTE: A measurement of installed stack height of brake disc pack should be taken and recorded with brakes applied after new discs have been “run in”. Measurements should again be taken at prescribed intervals. If difference between initial and subsequent measurements exceed machine specifications, the brake discs should be replaced.

132-1415 Brake Piston Puller

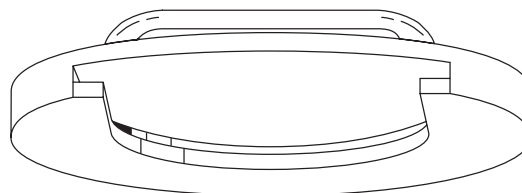
SMCS Code: 4256-011

Model: D250E Series II and D300E Series II Articulated Dump Trucks

Essential Tool

Warranty: Six Months

- Used to remove brake piston
- Slides onto top of piston, fitting into piston groove
- Grips piston for easier removal — reduces repair time
- Helps eliminates potential damage to brake piston during removal



Overall diameter	79.4 mm (3.13 in)
Inside diameter (brake piston)	67.5 mm (2.66 in)
Inside groove dimension	61.3 mm (2.41 in)

Reference

SEN9129, Service Manual

164-4622 Clamp Assembly

SMCS Code: 4250-017, 4267-017

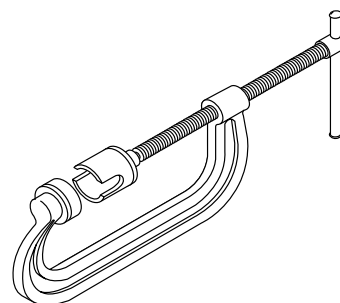
Model: 785C and 793C Large Mining Truck, 24H Motor Grader

Essential Tool

Warranty: Six Months

- Used to compress parking brake piston guide spring
- Required to disassemble and assemble brake group
- Safely compresses guide spring
- Locates over spring and guide — prevents tool from disengaging

Clamp opening (max)	143.0 mm (5.63 in)
Clamp throat depth	89.0 mm (3.50 in)
Spring diameter (max)	34.0 mm (1.34 in)



292-1274 Stop Group

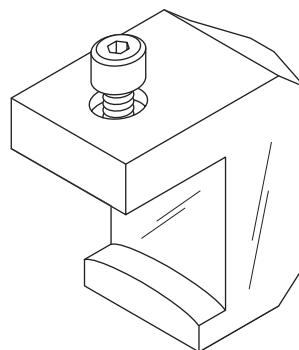
Model: 24M Motor Grader

Essential Tool

Warranty: Six Months

NEW TOOL

- Used to stall steering pump for testing
- C-style clamp fits into bore
- Cap screw used to lock stop in place
- 8T-2223 Socket Head Bolt serviced separately
- Material: lightweight aluminum



Reference

KENR6022, 24M Machine System, Disassembly and Assembly

5P-7389 Transparent Plug Assembly

5P-8678 Punch Assembly

SMCS Code: 4002-017

Model: 120G Motor Graders beginning with 87V-2262

Warranty: Six Months

- Used to determine brake wear
- Plug assembly, which contains a transparent plastic rod, is installed in spindle housing port for viewing a mark on brake piston; with brakes applied, position of mark as viewed through transparent plug assembly, is indicator of brake service life remaining; when mark is no longer visible, brake should be rebuilt
- At rebuild, punch assembly is installed in housing port and used to mark piston



Item	Part No.	Description
1	5P-7389 4K-2039 3K-0360	Transparent Plug Assembly Seal Seal
2	5P-8678 5F-9144	Punch Assembly Seal

5P-4197 Spacer

SMCS Code: 4205-010, 4234-010

Model: All "G" Series Motor Graders

Warranty: Six Months

- Provides space necessary to pull front axle spindle king pins on
- Has capacity to safely withstand compression load of both 6V-3160 and 6V-3175 Hydraulic Puller at full 703 kg/cm² (10,000 PSI) maximum working pressure



Spherical Ballstud Bearing Installers

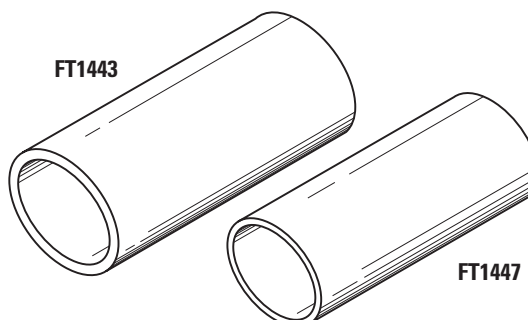
SMCS Code: 4303-017, 4318-010, 1253-017, 1253-016, 4303-010

Model: 769C, 773B and 777 Trucks

Warranty: None

- Used to remove and install spherical ballstud bearings in steering cylinders
- Material: SAE 1020 Steel

Part No.	Model
FT1443	773B and 777 Trucks
FT1447	769C Truck



Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and Assembly

Motor Grader Controls,
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Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and AssemblyMotor Grader Controls,
Cable Control and WinchLoader Lift Arm and
Excavator ImplementImplements, Frame,
Hitch and Suspension

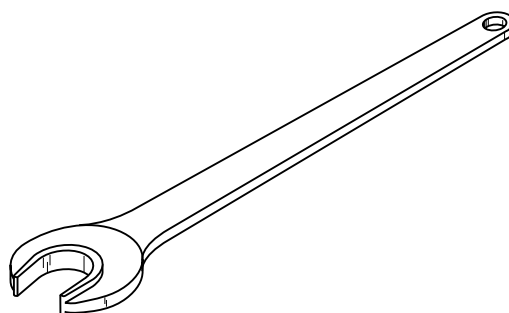
FT2394 Wrench

SMCS Code: 4321Y2D010
Model: 206B and 212B Excavators
Warranty: None

- Used to remove and install front steering cylinder linkage knuckles
- Made from 4C-9815 Wrench
- Standard wrench will not fit on these steering knuckles
- 32 mm (1.26 in), forged steel, straight-handled, open end, black oxide finish

Reference

SENR4322, Power Train Disassembly and Assembly Manual



9U-6736 Parking Break Spanner Wrench

SMCS Code: 4269-025
Model: 446 Backhoe Loader
Warranty: Six Months

- Used to adjust parking brake linkage — makes adjustment much faster and easier

References

SENR3971, Service Manual

Service Magazine, April 11, 1991

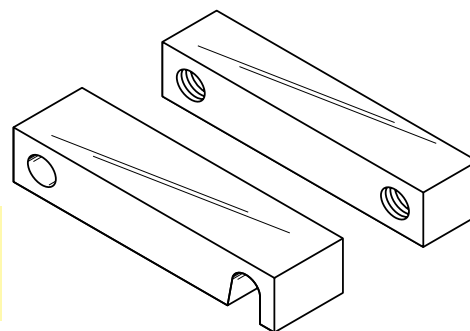


FT1578 Puller Bar

SMCS Code: 4303-011
Model: 824C Wheel Tractors; 825C and 826C Compactors
Warranty: None

- Required with two 5P-4776 Studs, two 1A-1935 Nuts, two 3K-5234 Washers, and **discontinued** 5P-2997 Hydraulic Puller to remove steering cylinder clevis pins
- Material: SAE 1018 Steel

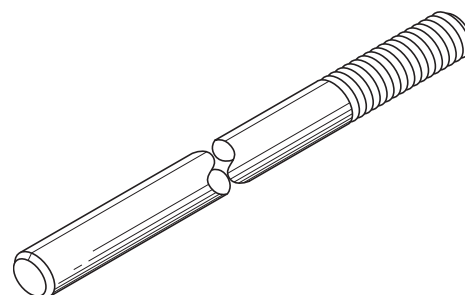
This article has changed since the printing of the 2009 Dealer Service Tools Catalog.



FT2468 Threaded Rod

SMCS Code: 4267-010
Model: 990 Wheel Loader
Warranty: None

- Used to remove and install parking brake from transfer gear case
- Remove two transfer gear case cover bolts and install two FT2468 threaded rods; parking brake can then be removed and will slide out of case along tools
- A ratchet puller, link brackets, and suitable sling will be necessary to lower parking brake to ground or work surface
- Material: SAE 4140 cold finish steel

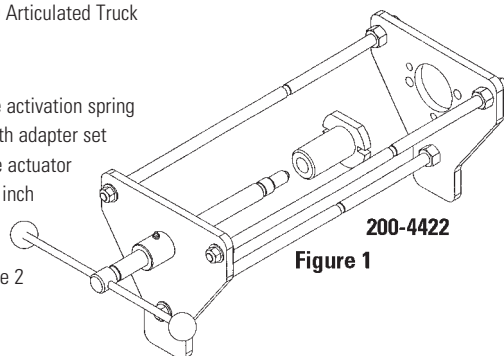


200-4422 Spring Compressor

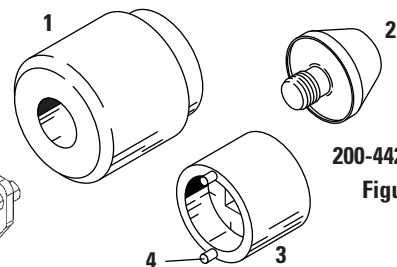
200-4423 Adapter Set

SMCS Code: 4267-550
Model: D250, D300, D350, D400 Articulated Truck
Essential Tool
Warranty: Six Months

- Used to replace parking brake activation spring
- Spring compressor is used with adapter set
- Used on Wabco parking brake actuator
- Square drive for guide (3): ½ inch
- Center to center pin distance: 38.1 mm (1.50 in)
- Set includes all items in Figure 2



200-4422
Figure 1



200-4423
Figure 2

Item	Part No.	Description
1		Thrust pad
2		Guide
3		Guide, ½ in square drive
4	045-5106	Pin

Reference

HENR8086, Service Manual

6V-0114 Brake Drum Gauge

SMCS Code: 6107-012

Model: 600 Series Wheel Tractor-Scrapers, with the exception of 613 and 613B

Warranty: Six Months

- Used to quickly and easily check brake drums for reusability
- Also, markings on gauge indicate whether standard or oversize brake linings will be needed

References

SEBF8035, Guideline for Reusable Parts, Inspecting and Machining Brake Drums

SMHS6826, Special Instruction, Installation of Oversize Brake Linings



Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and Assembly

Motor Grader Controls,
Cable Control and Winch

Loader Lift Arm and
Excavator Implement

Implements, Frame,
Hitch and Suspension

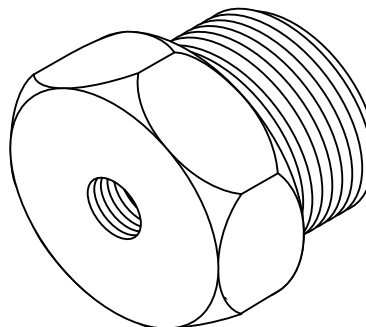
FT1800 Plug

SMCS Code: 4208-017, 4251-017

Model: 824C Wheel Tractor; 980C Wheel Loader

Warranty: None

- Replaces FT1536 Plug
- Used with 7D-5962 Bolt to remove and install brake pistons
- FT1800 Plug is 9S-4183 Plug with 12.7 mm (½ in) - 13-2B hole tapped through center



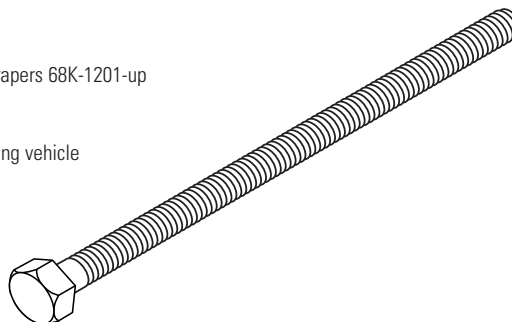
FT1451 Retraction Bolt

SMCS Code: 4262-010

Model: 641B Scrapers 65K-1150-up, 651B Scrapers 67K904-up and 657B Scrapers 68K-1201-up

Warranty: None

- Used to retract brake rotochambers necessary for servicing brakes or towing vehicle
- Made by extending threads on 1D-4574 Bolt
- To use retraction bolt, install 1A-7774 Flat Washer and thread it into 9D-8938 Brake Actuator to retract piston



5P-3569 Piston Press

SMCS Code: 4256-017, 4256-016

Model: 910, 920, 930 and 950 Wheel Loaders;

518 and 528 Logskidders;

and Tree Harvesters

Warranty: Six Months

- Used to facilitate installation of caliper disc brake pistons
- Minimizes seal damage during piston installation



Steering Column Supports

SMCS Code: 7325-010

Model: 926, 926E, 936, 936E, 916, IT18B

Warranty: None

- Used to support platform for steering column, brake pedals and valves, and governor control pedal group when cab/ROPS is removed
- Before cab/ROPS is removed, steering column supports should be installed

Part No.	Description
FT1868	Steering Column Supports, RH
FT1869	Steering Column Support, LH



FT1868



FT1869

1U-9003 Brake Piston Puller

SMCS Code: 4256-017

Model: 769D, 771D, 773D, 775D, 776D, and 777D Off-Highway Trucks

Warranty: Six Months

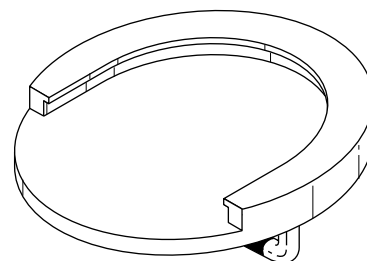
- Used to remove and install 114-9306 Brake Pistons located in back side of brake caliper
- Can be used on other pistons having same shape and size (refer to specifications)

References

SENR1421, 773D Truck and 775D Quarry Truck Machine Systems;

SENR1422, 769D Truck and 771D Quarry Truck Machine Systems

For use on brake pistons with	
Groove width	2.54 mm (0.1 in)
Groove outside diameter	75.1 mm (2.96 in)
Piston outside diameter	79.25 mm (3.12 in)



297-6383 Steering Spline Gauge

SMCS Code: 4310-040

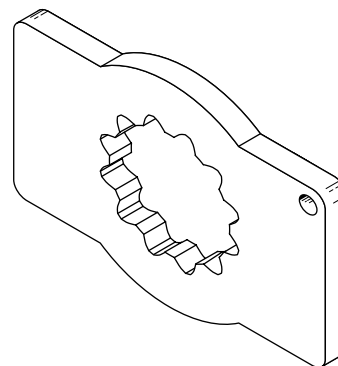
Model: All compact, small, and medium wheel loaders

Essential Tool

Warranty: Six Months

NEW TOOL

- Used to inspect steering column spline which fits into hydraulic metering unit
- Gauge is a go/no-go style gauge
- If gauge does not fit over spline, shaft is reusable
- If gauge fits over spline, shaft must be replaced



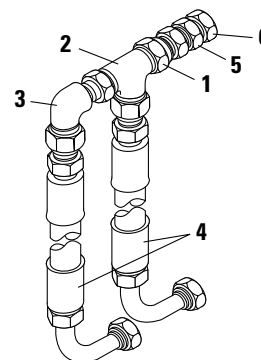
FT1973 Adapter Group, Brake Release for Towing

SMCS Code: 4250-553

Model: D4H, D5H, D6H and D7H Tractors; later D8L, D9L, D8N and D9R Tractors

Warranty: None

- Adaptable to D4H, D5H, D6H and D7H Tractors from first production; adaptable to following the models, effective with serial numbers indicated:
D9L — 14Y-3134
D8L — 53Y-3485
D8L S.A. — 4FB339NB
D8N — 5TJ1-Up and 9TC1-Up
D9R — 7TL1-Up and 8BL1-Up
- Used with FT1845 Pump Group to release brakes for towing and 123-0525 Brake Release Adapters and 123-0526 Brake Release Adapters
- See 8T-2857, 123-0525 and 123-0526 Adapters for machine usage; when tooling is installed, these adapters extend past spool bores in tractor steering valve, isolating brake circuit and allowing pump pressure to be applied directly to brake release pistons
- With leakage minimized, brake release can be maintained with low volume pump
- Before connecting pump and adapter group to tractor steering valve, maximum pressure relief valve opening pressure must be checked and adjusted in order to prevent possible damage to brake piston seals



Checking Maximum Pressure Relief Valve Opening Pressure

1. Plug the main pressure hose where it connects to the FT1973 Adapter Group.
2. Turn the bypass valve handle to the closed position.
3. While building pressure with the pump handle, observe the relief valve opening pressure.
4. Adjust relief valve opening pressure to 410 (10 PSI).

Installing Tooling on Tractor

The FT1973 Adapter Group is connected to the steering valve under the tractor seat.

1. Remove the quick-disconnect fittings from the ports marked BRK on the steering valve.
2. Install the adapters in the ports and connect the remainder of the FT1973 Adapter Group to the adapters and to the pressure hose from the pump.
3. It is usually convenient to route the pressure hose under the floorboard (leaving the floorboard loose) to the pump which is temporarily placed on the fender or deck.
4. Replace the seat and floorboard, leaving floorboard bolts out on 1 side to allow space for hose.
5. Plate the FT1845 Pump Group in front of the operator in a position convenient for observing the pressure gauge, working the pump handle and with ready access to the bypass valve. Place the tractor parking brake control in the "unlocked" position.
6. Preparation for releasing the brakes is now complete. Before towing, the operator should fasten the seat belt for safety if an emergency requires brake re-application.

Brake Release and Re-application

7. Turn the bypass valve handle to the closed position.
8. Work the pump handle rapidly to produce a large volume of oil flow. This flow is sometimes necessary to cause the brake piston seals to seat.
9. Brake piston seal seating will be evidenced by a sudden rise in oil pressure. At this point, oil flow will drop to near zero and pressure will rise to maximum.
10. An occasional pump stroke will maintain maximum pressure.
11. To re-apply the brakes, turn the bypass valve 90° to fully dump oil.

NOTE: Do not let pressure drop below 375 PSI while towing. To do so will risk partial brake engagement which can result in serious damage.

NOTE: Do not use brakes to retard the tractor. Absence of cooling oil flow will result in extensive damage to the brakes and system contamination. Brakes must be fully released while the towed tractor is moving. If an emergency calls for brake re-application, apply brakes fully and allow tractor to come to a stop before proceeding.

12. Brakes can be re-applied ONLY by turning the bypass valve to the open position. Using the steering levers and brake pedals is not effective.

Be sure to follow all other towing instructions and precautions published in the Operation and Maintenance Manual.

Brake Release Adapters

SMCS Code: 4267-553

Model: D8N, D9N and D9R Track-Type Tractors

Warranty: Six Months

- Used to supply oil from an external source to disengage spring applied parking brake whenever towing is required
- Used with FT1845 Pump Group, Brake System and FT1973 Adapter Group, Brake Release for Towing
- Tractors with disabled engine or power train hydraulic system cannot be moved without supplying oil to release parking brake — refer to Service Manuals and Operation and Maintenance Manuals for detailed instructions
- Adapters extend into control valve and isolate brake circuit (applies pressure directly to brake release pistons)
- Requires two adapters installed into ports of brake control valve

8T-2857 Adapter

Used for tractors with steering clutch control

- D4H, D5H, D6H, D7H (all)
- D5M: 4BR, 4JS, 3DR, 5FS
- D8N: 9TC1-UP PIN 1XJ1-UP PIN
- D6M: 9ZM, 2YS, 5WR, 2RN, 4GS
- D9N: 1JD1-UP PIN 6XJ1-UP PIN
- D8L: 53Y-3485-UP
- D9L: 14Y-3134-UP
- D8L S.A.: 4FB339NB-UP
- D9R: 8BL1-UP PIN

123-0525 Adapter

Used for (refer to Operation and Maintenance Manual for additional information)

- D8N: 5TJ1-UP PIN
- D8R (all)

123-0526 Adapter

Used for tractors with differential steering control

- D9R: 7TL1-UP
- Can also be used on D8N's and D8R's

References

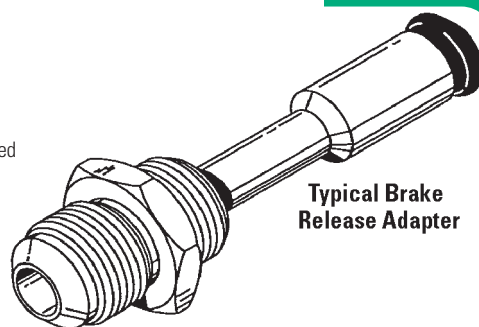
SEBU6422 and SEBU6028, Service Manual Module, D8N Operation and Maintenance

SEBU6029 and SEBU6668, Service Manual Module, D9N Operation and Maintenance

SEBU6892, Service Manual Module, D9R Operation and Maintenance [for tractors (8BL1-UP) with steering clutch control]

SEBU6923, Service Manual Module, D9R Operation and Maintenance [for tractors (7TL1-UP) with differential steering control]

SEBU6891, D8R Service Manual Module, D8R Operation and Maintenance



NOTICE

Before connecting pump and adapter group, check and adjust maximum pressure setting on relief valve to prevent possible damage to brake piston seals which could occur if the system is over-pressurized.

Part No.	Description	Overall Length	Engagement Depth (spot face to O-ring seal)	Connection to Brake Valve	Connection to Adapter Group	Seal for Brake Valve Passage	Seal for #8 STOR Connection	Seal for #10 STOR Connection
8T-2857	Brake Release Adapter	110.0 mm (4.3 in)	75.4 mm (2.97 in)	3/4-16 (#8 STOR port)	3/4-16 (#8 JIC male connector)	2J-6274 Seal	3K-0360 Seal	
123-0525	Brake Release Adapter	110.0 mm (4.3 in)	74.0 mm (2.91 in)	7/8-14 (#10 STOR port)	3/4-16 (#8 JIC male connector)	2J-6274 Seal		2M-9780 Seal
123-0526	Brake Release Adapter	85.0 mm (3.4 in)	49.0 mm (1.93 in)	7/8-14 (#10 STOR port)	3/4-16 (#8 JIC male connector)	2J-6274 Seal		2M-9780 Seal

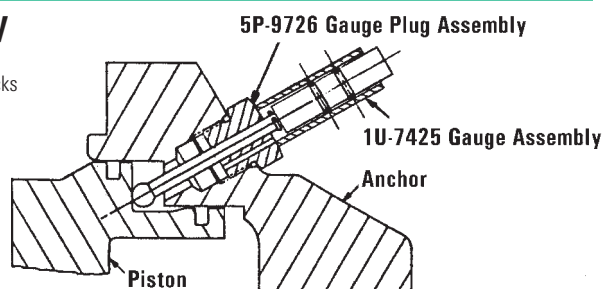
1U-7425 Displacement Gauge Assembly

SMCS Code:

Model: 772B/773B, 776B/777B, 785 and 789 Off-Highway Tractors and Trucks

Warranty: Six Months

- Eliminates difficulty of making brake wear measurements directly from 5P-9726 Gauge Plug (Brake wear on 772B/773B, 776B/777B, 785 and 789 Off-Highway Tractors and Trucks measured with 5P-9726 installed in service brake hydraulic port of brake anchor housing; when installed, 5P-9726 can be reached with only one hand making direct measurement very difficult)
- Allows serviceman to transport needed dimension away from vehicle for easy reading of measurement; gauge assembly placed over gauge plug to allow easy measurement of 5P-9726 rod piston; standard calipers or inside micrometer can then be used to determine plug position within tube of 1U-7425
- Brake piston travel, difference between minimum (actuated) and maximum (retracted), measured to determine percentage of brake wear
- Service Part: 6V-9028 O-ring Seal (2)



References

Technical Information Bulletin 7-22-87

Component Code 4250, Brake Wear Measurement Procedures and Specifications Service Manual

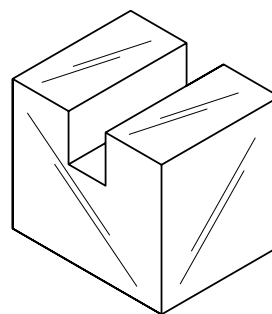
FT2616 Gauge Block

SMCS Code: 7473-040

Model: 950G, 962G Wheel Loaders

Warranty: None

- Used to measure brake wear
- Used with 6V-7030 Gauge Group
- Provides raised platform for taking measurements



Brake Disc Wear Gauges

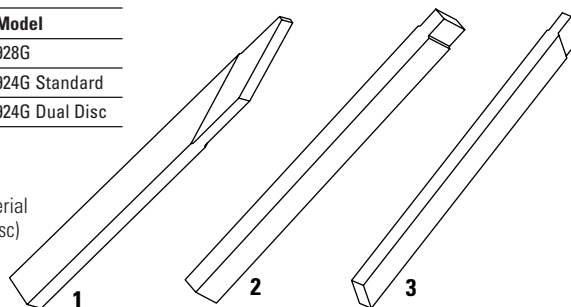
SMCS Code: 7474-040

Model: 924G and 928G Wheel Loaders

Warranty: Six Months

- Used to measure usable thickness of brake disc
- Quickly and easily determines if replacement is necessary
- Used by placing wear gauge through slot in brake housing (amount of material between step of tool and brake housing is the usable thickness of brake disc)

Item	Part No.	Model
1	221-6892	928G
2	221-6893	924G Standard
3	221-6894	924G Dual Disc



Brake Wear Gauges

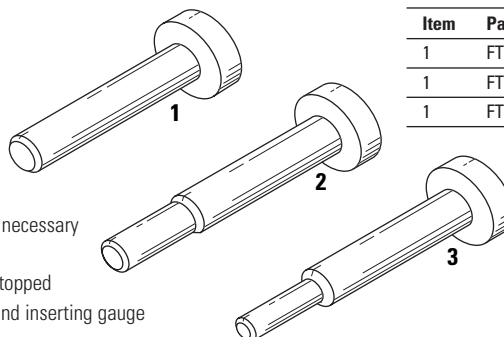
SMCS Code: 7474-040

Model: 854K Wheel Dozer, 990H, 992K Wheel Loaders

Warranty: None

NEW TOOL

- Used to measure overall brake pad thickness
- Go/No-Go design determines if brake pad replacement is necessary
- Eliminates difficulty in making brake wear measurements
- Used while operator applies service brakes with engine stopped
- Used by removing brake inspection port at brake anchor and inserting gauge



Item	Part No.	Percent of Wear
1	FT3103	100%
1	FT3104	75%
1	FT3105	50%

Usage Instructions

Insert FT3105 Brake Wear Gauge into inspection port. If head of gauge does not reach anchor, brake wear is less than 50%.

If head of gauge touches anchor, insert FT3104 Brake Wear Gauge into port. If head of gauge does not reach anchor, brake wear is 50 to 75%.

If head of gauge touches anchor, insert FT3103 Brake Wear Gauge into port. If head of gauge does not reach anchor, brake wear is 75 to 100%.

If head of gauge touches anchor, brake wear is 100% and brake service is required.



WARNING

Oil in housing can be under pressure and may be hot. To prevent personal injury stop the engine and wait five minutes to allow oil to settle before removing inspection port plug.

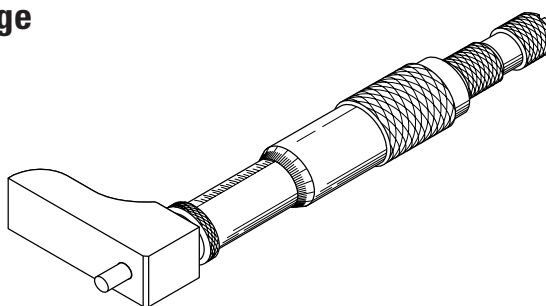
Reference

Testing and Adjusting publications for
854K Wheel Dozer and 990H, 992K Wheel Loader

185-5784 Brake Wear Gauge

SMCS Code: 7473-040
Model: 950G, 962G, and 966G Wheel Loaders
Warranty: Six Months

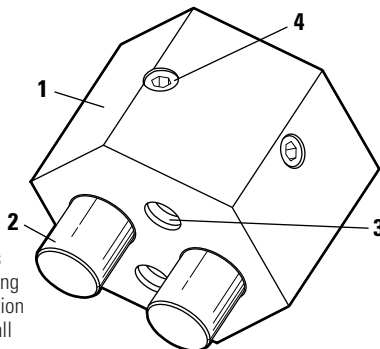
- Used to measure brake wear
- Easier to use and provides greater accuracy than tools previously available



4C-3386 Cylinder Spanner Wrench

SMCS Code: 4305-010
Model: 785, 789 and 793 Trucks
Warranty: Six Months

- Saves time during removal and installation of ball stud nut when servicing steering linkage and steering cylinder systems; keeps ball stud from turning
- Removal and installation of ball studs, particularly during installation, requires ball stud to be held and kept from turning when nut is being torqued; usually friction of taper alone is not enough to keep ball stud from turning



The Wrench Assembly (1) consists of a 63.5 mm (2½ in) hex body that is easily held with a 63.5 mm (2½ in) wrench or socket (5S-6078 Socket shown). Two 4C-4887 Pins (19.05 mm [¾ inch] diameter) (2), and two 4C-3387 Pins (9.53 mm [⅜ in] diameter) (3) are easily positioned into or out of the hex body and retained in the desired position with detent grooves and ball spring plungers (4). The 2 different sized pins will allow the tool to be used on all ball studs used on 785 and 789 Trucks. Currently the ball studs contain 9.52 mm (⅜ in) diameter holes. Future ball studs will have 19.05 mm (¾ in) diameter holes.

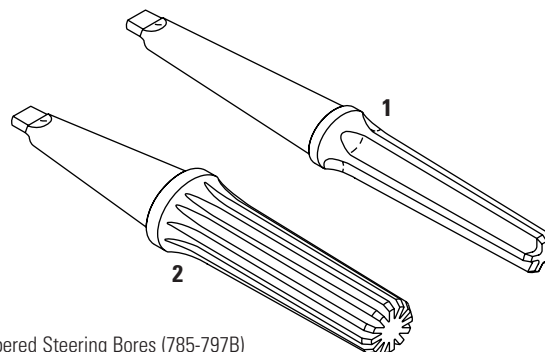
Solid Taper Reamers

SMCS Code: 4305-064
Model: 785, 789, 793, 797(A), and 797B Off-Highway Trucks

Essential Tool

Warranty: Six Months

- Used to repair tapered steering arm linkage joints
- Can be resharpened for continued usage
- 202-8960 and 202-8961 used on 785 through 797(A) (up to 5YW-1) trucks
- 258-5684 used on 797(A) (5YW-1 and UP) and 797B (JSM-1 and UP) trucks



Reference

SEBF8271, Guideline for Reusable Parts and Salvage Operations, Salvage of Tapered Steering Bores (785-797B)

Item	Part No.	Description	Large End Diameter	Small End Diameter	Flutes	Flute Length	Taper	Overall Length	Shank
1	202-8960	Solid Taper Reamer (roughing)	84.14 mm (3.31 in)	66.37 mm (2.61 in)	5	142.2 mm (5.6 in)	1:8	393.7 mm (15.5 in)	Number 5 Morse Taper
	202-8961	Solid Taper Reamer (finishing)	84.14 mm (3.31 in)	66.75 mm (2.63 in)	8	139.2 mm (5.48 in)	1:8	393.7 mm (15.5 in)	Number 5 Morse Taper
2	258-5684	Solid Taper Reamer	113.48 mm (4.47 in)	92.12 mm (3.63 in)	12	171.0 mm (6.73 in)	1:8	349.0 mm (13.75 in)	Number 5 Morse Taper

226-2378 Lapping Tool (Ball Stud)

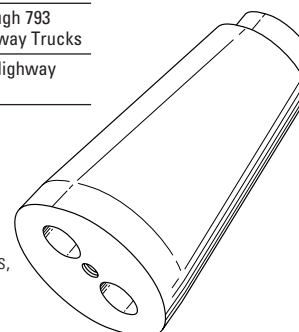
SMCS Code: 4305-064, 005-020
Model: 769 through 797B Quarry and Off-Highway Trucks
Warranty: Six Months

- Used to finish-lap tapered steering arm linkage joints on steering arms, center arms, and steering boxes
- Used with 176-6538 Ball Stud Spanner Wrench (797) to rotate lapping tool or a 4C-3386 Cylinder Spanner Wrench, 5S-6078 Socket (2½ inch), and 1 inch square drive ratchet is required to remove ball studs on 769 through 793 Off-Highway Trucks
- Used with 226-6624 Lapping Compound
- Laps bore to proper specifications
- Heat-treated for added durability

Part No.	Taper	Weight	Use
265-9213	1:8 ratio	2.3 kg (5 lb)	769 through 777 Off-Highway Trucks
226-2378	1:8 ratio	7.4 kg (16.4 lb)	785 through 793 Off-Highway Trucks
265-9214	1:8 ratio	10.6 kg (23.4 lb)	797 Off-Highway Trucks

Reference

SEBF8271, Guideline for Reusable Parts and Salvage Operations, Salvage to Tapered Steering Bores (785-797)



Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and AssemblyMotor Grader Controls,
Cable Control and WinchLoader Lift Arm and
Excavator ImplementImplements, Frame,
Hitch and Suspension

Plug Gauges with Case

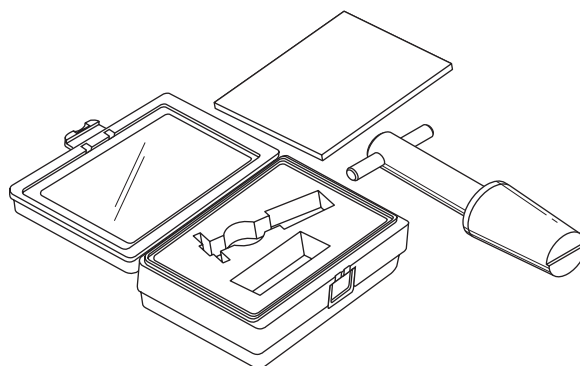
SMCS Code: 4305-064, 005-020

Model: 769, **770 (BZZ)**, 771, **772 (RLB)**, 773, **773F (EED)**, 775, **775F (DLS)**,
777, 777F (JRP), 784, 785, 789, 793, and 797 Off-Highway Truck

Essential Tool

Warranty: Six Months

- Used to inspect steering arm linkage joints with a 1:8 ratio on steering arms and center arms
- Used with 280-1555 Blueing Paste (sold separately)
- Gauges have incorporated a "Go" and "No Go" step to determine wear condition of specific steering joint tapered bores
- Durable waterproof case provided with each gauge group
- Foam insert protects gauge from damage and provides storage for 280-1555 Blueing Paste (sold separately)
- Heat-treated and black-oxide coated for added durability



References

SEBF9054, Guideline for Reusable Parts,
Reusability of Tapered Steering Bores
(769 Through 777 Trucks and Tractors)SEBF9055, Guidelines for Reusable Parts,
Reusability of Tapered Steering Bores
(784 Tractor Through 797B Trucks)

***This article has changed
since the printing of the 2009
Dealer Service Tools Catalog.***

Part No.	Description	Model Usage
265-9215	Plug Gauge Group	769, 771, 772
265-9216	¹ Plug Gauge Assembly (not serviced separately)	
265-9217	Foam Block Group (serviced separately)	
265-9218	Plug Gauge Group	773, 775, 777
265-9219	¹ Plug Gauge Assembly (not serviced separately)	770 (BZZ), 772 (RLB)
265-9220	Foam Block Group (serviced separately)	773F (EED), 775F (DLS), 777F (JRP)
265-9221	Plug Gauge Group	785
265-9222	¹ Plug Gauge Assembly (not serviced separately)	
265-9223	Foam Block Group (serviced separately)	
265-9224	Plug Gauge Group	789, 793, 797(A)
265-9225	¹ Plug Gauge Assembly (not serviced separately)	
265-9226	Foam Block Group (serviced separately)	
265-9227	Plug Gauge Group	797B
265-9228	¹ Plug Gauge Assembly (not serviced separately)	
265-9229	Foam Block Group (serviced separately)	

¹ Not serviced

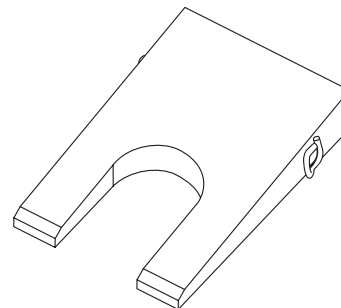
Ball Stud Removers

SMCS Code: 4305-010, 4318-010, 4329-010

Model: 769 through 797B Off-Highway Trucks

Warranty: Six Months

- Used to separate ball stud from steering joint
- Reduces damage to steering components (strike remover tool, no impact in steering components necessary)



References

SENR1561, Disassembly and Assembly, 769D and 771D Off-Highway Trucks

SENR1584, Disassembly and Assembly, 773E and 775E Off-Highway Trucks

RENR3365, Disassembly and Assembly, 776D and 777D Off-Highway Trucks

SENR1500, Disassembly and Assembly, 784C and 785C Off-Highway Trucks

SENR1534, Disassembly and Assembly, 789C Off-Highway Truck

RENR2535, Disassembly and Assembly, 793C and 793C XQ Off-Highway Trucks

RENR2588, Disassembly and Assembly, 797B Off-Highway Truck

Part No.	Use	Weight
231-4902	769 and 771 Off-Highway Trucks	1.827 kg (4.025 lb)
231-4903	773 through 777 Off-Highway Trucks including 777 HAA	3.142 kg (6.92 lb)
231-4904	785 Off-Highway Trucks including 785 HAA	7.119 kg (15.68 lb)
231-4905	789 through 793 Off-Highway Trucks	8.506 kg (18.736 lb)
287-5796	797 Off-Highway Trucks	12.6 kg (27.8 lb)

Compressors

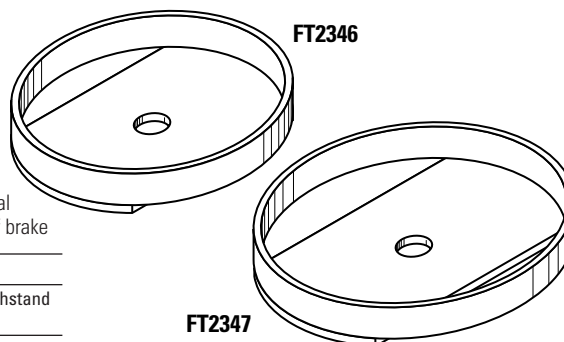
SMCS Code: 4255-017

Model: CB-434 Compactor

Warranty: None

- Used in disassembly of parking brake disc group
- Applied by a bolt through a hole in center of crossplate which engages a tapped hole in center of conical spring plate; tightening bolt flattens conical spring which removes force from snap ring retainer, allowing disassembly of brake

Part No.	Material	
FT2346	152.4 ID x 165 OD steel tube	16 mm (0.63 in) thick crossplate to withstand 6750 lb force required for front brake
FT2347	171.5 ID x 190 OD steel tube	16 mm (0.63 in) thick crossplate to withstand 7875 lb force required for rear brake



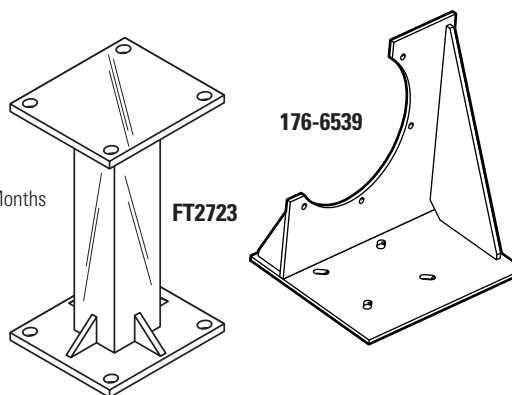
176-6539 Brake Motor Removal and Installation Bracket Assembly FT2723 Support Stand

SMCS Code: 4268-010
Model: 797 Off-Highway Trucks

Essential Tool

Warranty: 176-6539 Brake Motor Removal and Installation Bracket Assembly: Six Months
FT2723 Support Stand: None

- Used to remove and install brake cooling motor from hydraulic tank
- Used with 1U-7505 Transmission Jack and FT2723 Support Stand



9U-6789 Brake Alignment Tool

SMCS Code: 4255-024
Model: 777C Truck (with optional oil-cooled front disc brakes)
Warranty: Six Months

- Used to align clutches and discs; proper alignment is critical
- Assures correct alignment of clutch plates and discs prior to wheel assembly; helps eliminate damage of clutch pack and other mating components at assembly
- Simplifies alignment and reduces installation time (correct alignment and installation assure proper brake operation)
- Used in the field without removing brakes (vertical position) or in the shop when brake is in horizontal position

Outside diameter	400.0 mm (15.75 in)
Inside diameter	200.0 mm (7.87 in)
Thickness	165 mm (6.5 in)
Weight	14 kg (31 lb)



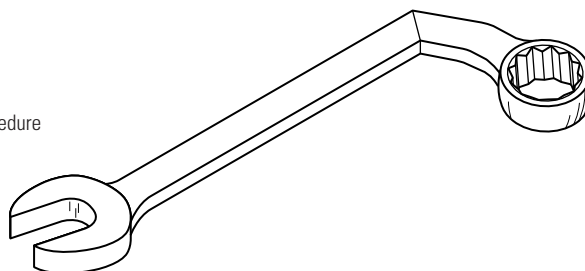
Reference

SENR5693, Power Train Supplement,
777C Oil-Cooled Disc Brakes

FT2812 Modified Wrench

SMCS Code: 5086-025, 5070
Model: All D Series Backhoe Loaders
Warranty: None

- Used to loosen and tighten torque limiter locknut during adjustment procedure
- Made from 8H-8516 Box End Wrench



References

RENR3581, Testing and Adjusting 416D Backhoe Loader Hydraulic and Steering System

RENR3584, Testing and Adjusting 420D, 424D, 428D, 430D, 432D, 438D, and 442D Backhoe Loader Hydraulic and Steering System

162-8231 Disc Brake Alignment Group

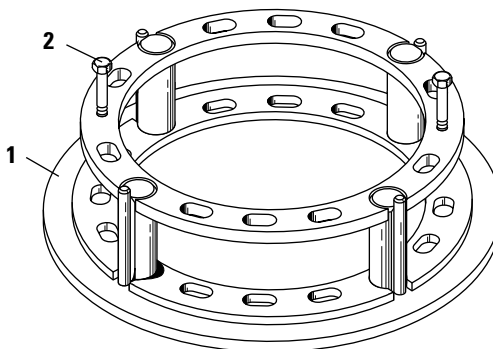
SMCS Code: 4255-024
Model: D350E and D400E Series II, 735 and 740 Articulated Dump Trucks

Essential Tool

Warranty: Six Months

- Used to provide easy installation of disc brakes
- Aligns disc brake splines before brake package installation onto wheel station
- Diameter across pins: 351.5 mm (13.84 in)

Item	Part No.	Description
1	162-8231	Disc Brake Alignment Group
2	0S-1590	Bolt



Hydraulic System Tools

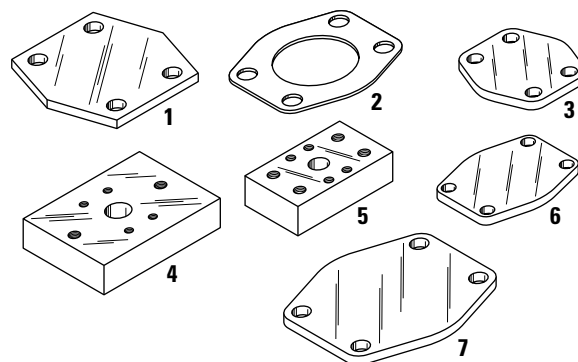
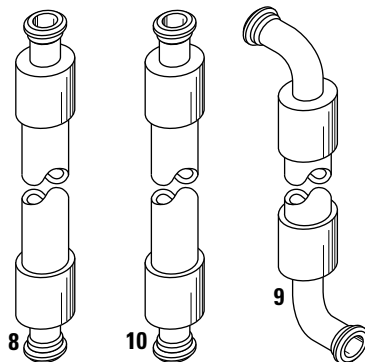
Flushing 992 Wheel Loaders

SMCS Code: 5050-046
Model: 992 Wheel Loader
Warranty: None

- Fabricated tools used to flush hydraulic system when contamination has occurred due to sudden failure of portion of system

Reference

SMHS6866



Item	Part No.	Description
1	FT0870	Cover
2	FT0871	Gasket
3	FT0872 ¹	Cover
4	FT0873	Adapter
5	FT0874	Adapter

Item	Part No.	Description
6	FT0875	Cover
7	FT0876	Cover
8	FT0877 ¹	Hose
9	FT0878 ¹	Hose
10	—	Hose ¹

¹ Two required

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Tools for Flushing Scraper Hydraulic Systems

SMCS Code: 5050-046
Model: Wheel Tractor-Scrapers
Warranty: Six Months

- When flushing contaminated oil from hydraulic system, **discontinued** 6J-1685 Tube Assembly, along with other miscellaneous parts, is required to bypass cylinders to permit free flow of oil

Reference

FM055145

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.



Item	Qty.	Part No.	Description	Size
1	2	—	Tube Assembly	(1¼ - 1½ in) SAE
Other Parts Required				
2	6	1P-4579	Flange	(1½ in) SAE
3	8	1A-1460	Bolt	51.0 mm (½ in - 13 x 2 in)
4	10	1P-4578	Flange	(1¼ in) SAE
5	8	1D-4707	Bolt	57.0 mm (7⁄16 in - 14 x 2.25 in)
6	12	1P-4576	Flange	(¾ in) SAE
7	4	0T-0318	Bolt	25.0 mm (7⁄16 in - 14 x 1 in)
8	12	7F-0192	Bolt	51.0 mm (¾ in - 16 x 2 in)
9	22	4H-4581	Plug	19.05 mm (¾ in)
10	8	—	Plug	12.7 mm (½ in)
11	8	1D-4719	Nut	(½ in - 13)
12	4	6H-1717	Bolt	29.0 mm (½ in - 13 x 1½ in)
13	2	3H-5521	Plate	(1¼ in) SAE
14	8	1D-4718	Nut	(7⁄16 in - 14)
15	3	3H-5522	Plate	(¾ in) SAE
16	12	1D-4717	Nut	(¾ in - 16)
17	1	9U-6219	Box	
Not shown	1	2P-8289	Holder Block	
Not shown	2	6H-3621	Plug	

5P-7336 Bolt

SMCS Code: 5050-038, 1000-036
Model: 225B, 229, 235C, 245B
Warranty: Six Months

- Used to provide way to manually engage pilot-operated control valves when testing and adjusting excavator hydraulic systems
- Installed directly into pressure tap hole in end cover to allow variable positioning of valve without using pilot controls in cab
- Makes testing and adjusting a 1-person job instead of requiring 2
- Grade 5 bolt, 10.16 mm (4 in) long and threaded $\frac{9}{16}$ inch-18 to fit covers on excavator control valves



WARNING

Always remove the 5P-7336 Bolts immediately after completion of the testing or adjusting procedure and reinstall the $\frac{9}{16}$ inch-18 O-ring plug before operating the machine in a normal manner. Injury to personnel and damage to equipment can result if this is not done.

Fittings for 22 mm ($\frac{7}{8}$ in) JIC Connectors

SMCS Code: 5086-036
Model: Wain-Roy Backhoe
Warranty: Six Months

- 9S-0176 Tee and 9S-0177 Union used for tapping into 22.22 mm ($\frac{7}{8}$ in) JIC connectors on Wain-Roy Backhoes to check pressure relief valve settings

Item	Part No.	Description
1	9S-0177	Union
2	9S-0176	Tee



Portable Hydraulic Tester

SMCS Code: 3000-032, 5000-032
Model: All Models Including E and MS Series Excavators
Warranty: Six Months

- Used to test hydraulic flow, pressure, and temperature in any hydraulic system (used in field or shop by simulating system working conditions)
- Range and versatility extended with use of externally connected flow meters (coupled with 4C-9438 Cable)
- Troubleshoot or adjust hydraulic circuits at low or high flows ("Interpass" protection prevents dangerous external oil spray in event of over-pressure)
- Unit is self contained and bi-directional (easily installed into hydraulic circuit using hoses and quick disconnects)
- Uses **discontinued** 6V-3136 Photo Pickup and 6V-2198 Cable, saving tool accessory costs
- Uses standard batteries with automatic power-off feature
- Use 9U-5229 Adapter or 9U-5228 Adapter to reduce ports to 41.27 mm ($1\frac{5}{8}$ in) or 33.33 mm ($1\frac{1}{4}$ in) STOR (Straight Thread O-ring) respectively [makes a close-coupled connection with 41,000 kPa (6,000 PSI) pressure rating]

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

4C-9910 Portable Hydraulic Tester	
Flow range	13.0 - 475.0 lpm (3.5 - 125.0 gpm)
Digital readout scales	Metric, US or British
Accuracy	±1% full scale over normal range
Analog output	0 - 1.5 VDC = 0 - 475.0 lpm (0 - 125 gpm)
External input socket for flow meters	0.2 - 795 lpm (0.05 - 210 gpm) range
Continuous working pressure (analog readout)	0 - 500 bar (0 - 6,800 PSI)
Pressure accuracy	±1.6% full scale
Temperature (analog readout)	10° to 120°C (50° to 250°F)
Temperature accuracy	±1°C (±2°F)
Speed	0 - 6000 RPM (digital readout)
Accuracy	±1% full scale
Ports	$1\frac{1}{8}$ -12 UNF SAE O-ring
4C-9911 Flowmeter (typical)	
Flow accuracy	±1% full scale of normal range; ±2% full scale of extended range
Temperature	10° to 120°C (50° to 250°F)
Temperature accuracy	±1°C (±2°F)

References

NEHS0565, Operating Manual, Portable Hydraulic Tester
NEHS0576, Operating Manual, Portable Hydraulic Tester Repair Manual

Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

Implements, Frame, Hitch and Suspension

*This article has changed
since the printing of the 2009
Dealer Service Tools Catalog.*

Specifications for Flow Meters

Part No.	Description	Normal Flow Range	Extended Flow Range	Max. Pressure	Port Size
4C-9911	Flow Meter, 55 lpm (15 gpm)	8 - 50 lpm (2 - 12 gpm)	2 - 60 lpm (0.5 - 15 gpm)	420 bar (6090 PSI)	1 $\frac{1}{16}$ -12, 12 SAE
4C-9436	Flow Meter, 110 lpm (30 gpm)	12 - 120 lpm (3 - 25 gpm)	5 - 150 lpm (1 - 30 gpm)	420 bar (6090 PSI)	1 $\frac{1}{16}$ -12, 12 SAE
4C-9912	Flow Meter, 245 lpm (65 gpm)	20 - 220 lpm (5 - 50 gpm)	10 - 300 lpm (2 - 65 gpm)	420 bar (6090 PSI)	1 $\frac{1}{16}$ -12
4C-9913	Flow Meter, 380 lpm (100 gpm)	30 - 300 lpm (8 - 80 gpm)	10 - 400 lpm (3 - 100 gpm)	420 bar (6090 PSI)	1 $\frac{1}{16}$ -12
4C-8687	Flow Meter, 490 lpm (130 gpm)	45 - 450 lpm (10 - 100 gpm)	20 - 500 lpm (4 - 130 gpm)	350 bar (5075 PSI)	1 $\frac{1}{2}$ SAE Flange
4C-9914	Flow Meter, 645 lpm (170 gpm)	50 - 550 lpm (12 - 150 gpm)	25 - 650 lpm (6 - 170 gpm)	350 bar (5075 PSI)	1 $\frac{1}{2}$ SAE Flange
4C-8686	Flow Meter, 795 lpm (210 gpm)	60 - 700 lpm (15 - 180 gpm)	30 - 800 lpm (7 - 210 gpm)	350 bar (5075 PSI)	1 $\frac{1}{2}$ SAE Flange

Adapters

Working pressure rating	41,000 kPa (6,000 PSI)
Burst pressure rating	165 MPa (24,000 PSI)
Size of hex across flats	53.97 mm (2 $\frac{1}{8}$ in)

Service/Repair Parts

Part No.	Description	Size
6K-6307	O-ring	47.62 mm (1 $\frac{7}{8}$ in)
2S-4078	O-ring	41.27 mm (1 $\frac{5}{8}$ in)
7M-8485	O-ring	33.33 mm (1 $\frac{1}{16}$ in)

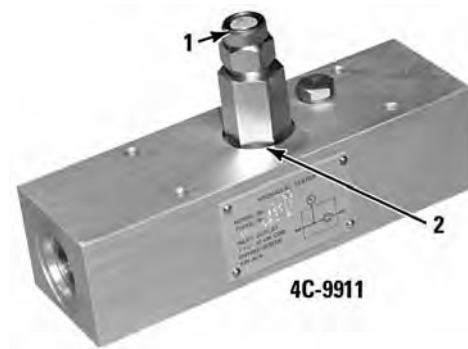
Part No.	Description	Use
9U-5228	Adapter	Adapts 1 $\frac{1}{8}$ 12 STOR male fitting to 1 $\frac{1}{16}$ -12 male union
9U-5229	Adapter	Adapts 1 $\frac{1}{8}$ 12 STOR male fitting to 1 $\frac{1}{8}$ -12 male union



4C-9910

Item	Part No.	Description
1	127-9353	Rupture Disc
2	4C-9625	Pressure Gauge
3	4C-9922	Load Valve

Item	Part No.	Description
1	4C-9623	Transducer
2	4C-9626	Transducer Seal
3	4C-9918	Seal Kit



4C-9911

Item	Part No.	Description
1	4C-9629	Transducer
2	4C-9626	Transducer Seal

Hydraulic Flow Testers

SMCS Code: 0774, 0784

Model: All Models

Warranty: Six Months

Hydraulic Flow Testers

- Used to diagnose hydraulic flow, pressure and temperature symptoms in any hydraulic system, including E and MS Family Excavators
- Allows testing in field or shop; built-in load valve allows simulation of operation
- Can be used to troubleshoot or set hydraulic circuits to specifications at low or high flows
- In case of over pressure, "interpass" protection protects from dangerous external oil spray
- May be used in-line or for tee test operation
- Self-contained, bi-directional, capable of reading all parameters and loading systems regardless of flow direction; easily installed with hoses into a circuit; high pressure quick disconnects readily available from the Dealer Service Tools Division to work with these units
- Analog display of all parameters permitting quick check of hydraulic system or component performance

*This article has changed
since the printing of the 2009
Dealer Service Tools Catalog.*

- Accept Caterpillar discontinued 6V-3136 Photo Pickup and 6V-2198 Cable to read RPM; saves tool accessory costs
- Uses standard batteries with automatic "power off" feature
- 1U-8761 Hydraulic Flow Tester discontinued and replaced by 4C-9437; 1U-9551 Hydraulic Flow Tester discontinued and replaced by 4C-9675

4C-9436 Flow Meter

- When used with hydraulic flow testers, extends their range and versatility, keeping present tooling from becoming obsolete

References

NEHS0572, Tool Operating Manual, Portable Hydraulic Tester

NEHS0573, Tool Operating Manual, Turbine Flow Meter

NEHS0576, Tool Operating Manual, Repair of Portable Hydraulic Tester

Vehicle System Tools

4C-9437 Hydraulic Flow Tester

Flow range	0 - 100 gpm or 0 - 25 gpm metric or US scales
Accuracy	±2% full scale over normal range External input socket calibrated for 4C-9436 Flow Meter only; use 4C-9438 Cable to connect external flow meter
Continuous working pressure	0 - 420 bar (0 - 6,000 PSI)
Accuracy	±1.6% full scale
Temperature (dual scale)	10° to 120°C (50° to 250°F)
Accuracy	±2% full scale
Speed, will measure	0 - 10,000 photo tach 0 - 3,000 mech. tach
Accuracy	±2% full scale
Uses discontinued 6V-3136 Pickup and 6V-2198 Cable Ports	1½ in-12 UNF SAE O-ring port

4C-9675 Hydraulic Flow Tester

The 4C-9675 has the same design characteristics as the 4C-9437 except for flow capacity of 0-200 or 0-40 g/m and working pressure of 5000 PSI.

Flow range (dual)	0 - 200 gpm or 0 - 40 gpm metric or US scales
Accuracy	±2% full scale over normal range External input socket calibrated for 4C-9436 Flow Meter only; use 4C-9438 Cable to connect external flow meter
Continuous working pressure	0 - 350 bar (0 - 5,000 PSI)
Accuracy	±1.6% full scale
Temperature (dual scale)	10° to 120°C (50° to 250°F)
Accuracy	±2% full scale
Speed, will measure	0 - 7,500 photo tach; 0 - 2,500 mech. tach
Accuracy	±2% full scale
Uses discontinued 6V-3136 Pickup and 6V-2198 Cable	
Ports	1½ in SAE 4 bolt flange (XT-3)

4C-9436 Flow Meter

Flow range	3 - 25 gpm (1 - 30 extended range)
Working pressure	0 - 420 bar max. (6,300 PSI)
Temperature	10° to 120°C (50° to 250°F)
Ports	1½ in-12 SAE O-ring (#12 port)

The 4C-9436 Flow meter is not a standalone flow meter. It is a flow block with a flow/temperature transducer. It must be used with a hydraulic flow tester or another device with readout capabilities. The 4C-9438 Cable is used to couple the flow meter to a readout device.



Item	Part No.	Description
1	—	Ammeter
2	4C-9625	Gauge
3	4C-9627	Load Valve, 4C-9437 Tester
Not shown		
	4C-9623	Transducer
	4C-9626	Seal
	4C-4083	Rupture Disc for 4C-9437 Tester
	4C-4084	Rupture Disc for 4C-9675 Tester



Item	Part No.	Description
1	4C-9629	Transducer
Not shown	4C-9626	Seal

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Rupture Discs

SMCS Code: 0784

Model: Most Caterpillar Models

Warranty: Six Months

- Replacement discs for 2 different portable hydraulic testers; disc will blow out if over-pressure conditions have occurred in portable hydraulic tester

Reference

NEHS0508-01, instructions to replace discs (designated as safety discs in instruction manual)

Part No.	Outside Diameter	Nominal Rupture Pressure	Pkg. Qty.	Use
4C-4083	15.875 mm (0.625 in)	41,343 kPa (6,000 PSI)	4	4C-9437 and 160-2513 Portable Hydraulic Tester
4C-4084	19.913 mm (0.784 in)	41,343 kPa (6,000 PSI)	4	4C-9675 and 160-2515 Portable Hydraulic Tester

Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

Implements, Frame, Hitch and Suspension

Flowmeter-Testers

SMCS Code: 0774, 0784

Warranty: Six Months

- Used to regulate hydraulic flow with built-in load valve
- Used with DataView

Repair Information

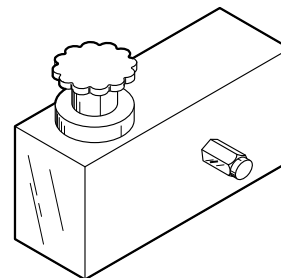
Webster Instruments
1290 East Waterford Avenue
Milwaukee, WI 53207

Phone: (414) 769-6400

Fax: (414) 769-6591

A "Return Material Authorization" number is required.

Part No.	Flow Range	Maximum Pressure	Connections
160-2513	19 - 190 lpm (5 - 50 gpm)	41,343 kPa (6000 PSI)	1 $\frac{5}{16}$ -12 (No. 16) O-ring ports
160-2514	15 - 474 lpm (4 - 125 gpm)	48,230 kPa (7000 PSI)	1 $\frac{7}{8}$ -12 (No. 24) O-ring ports
160-2515	57 - 682 lpm (15 - 180 gpm)	34,450 kPa (5000 PSI)	38.1 mm (1.5 in) SAE 4-bolt flange



FT1043 Blocking Cover

SMCS Code: 5050-036

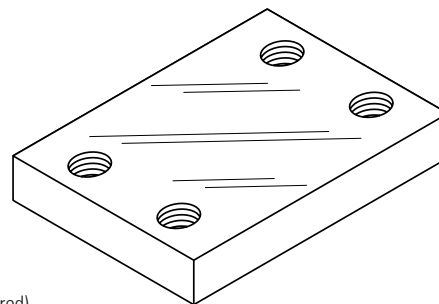
Model: D8H and D9G Tractors

Warranty: None

- Used with 9S-2000 Flow Meter when flow testing large section of D9G Tractor hydraulic system equipped with gear-type pump and D8H Tractor hydraulic pumps (9S-2000 Flow Meter discontinued)
- 4H-6807 Rubber Plug also needed when testing small section of the pumps

Reference

REG00791, Service Manual, Testing Hydraulic Systems and Components (additional parts required)



Adapters for Hydraulic System Component Testing (Tee Test Tools)

- The same improved adapters are recommended for use with discontinued 5P-3600 Flow Meter and discontinued 9S-2000 Flow Meter, with one additional C-2 hose assembly being required with 9S-2000 Flow Meter; refer to following tool lists and Tee Test Tool Chart for adapter components required for each machine
- All adapter components are high pressure, 103,500 kPa (15,000 PSI) minimum burst pressure, fittings and, where convenient, duplication of components has been eliminated
- Some components are seldom used and have been removed from "recommended" status to an "available if needed status"
- For convenience, 5P-8687 Tool Group, consisting of an E-2 Tachometer Adapter, blocking plate assemblies, and certain special tools, is available

NOTE: Oil flow should always be from a nipple into a valved coupler and never from a coupler into a valved nipple.



WARNING

Always make certain that the valved coupler on the C5 and C8 Connecting Hose Assemblies are connected to the valved nipple on the pump adapter before starting the diesel engine. If this connection is not made properly, injury to personnel or damage to the machine can occur when performing the pump test.

Refer to Form REG00791-01 for procedural information for testing hydraulic systems and components.

5P-8687 Tee Test Tool Group

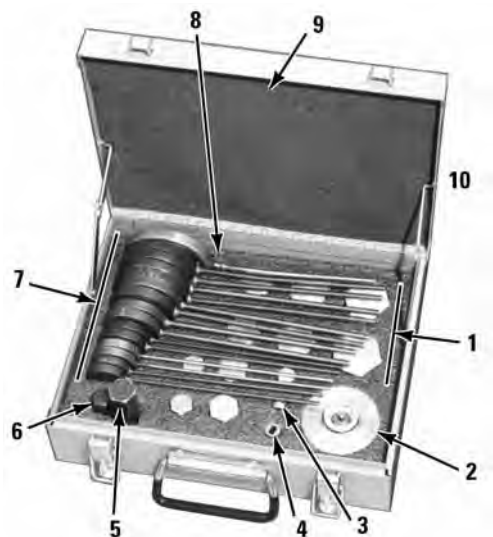
SMCS Code: 4250-032

Model: See Charts

Warranty: Six Months

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

- For use with 1U-8761 and 1U-9551 Portable Hydraulic Testers (all blocking plate assemblies, most needed tachometer adapters, and 2 tool bits available under 1 part number)
- All parts stored in compact box with decal in lid for quick parts reference



Item	Part No.	Description	Qty.
1	2P-9697	Plug, 7/8 in-14 thd	2
	6J-7366	Cap, 7/8 in-14 thd	2
	9S-8895	Plug, 1 1/16 in-12 thd	2
	9S-8896	Cap, 1 1/16 in-12 thd	2
	5P-4299	Plug, 1 3/16 in-12 thd	
	8L-9137	Cap, 1 3/16 in-12 thd	
	5P-2299	Plug, 1 3/16 in-12 thd	
	3R-6789	Cap, 1 3/16 in-12 thd	
	9S-8927	Plug, 3/4 in-18 thd	2
	8S-4950	Cap, 3/4 in-18 thd	2
2	5P-2909	Plug, 3/4 in-16 thd	2
	8S-4951	Cap, 3/4 in-16 thd	2
	—	Plug, 7/8 in-20 thd	
	9L-8493	Cap, 7/8 in-20 thd	
	1W-2316	Adapter Assembly	
	5P-0537	Washer, Discontinued	
	4M-8303	Seal	
	3	5P-1758	Shaft Assembly
	4	4N-0538	Coupling
	5	9U-7419	Bit, 19.05 mm (3/4 in)
6	1P-3566	Bit, 14.28 mm (9/16 in)	
	7	9S-7358	Plate Assembly, 12.7 mm (1/2 in)
	5F-7054	Seal	2
	9S-8894	Plate Assembly, 15.87 mm (5/8 in)	2
	4J-8996	Seal	2
	9S-7359	Plate Assembly, 19.05 mm (3/4 in)	2
	5F-1678	Seal	2
	9S-8092	Plate Assembly, 25.4 mm (1 in)	2
	4F-7391	Seal	2
	9S-8093	Plate Assembly, 31.75 mm (1 1/4 in)	2
7	4F-7952	Seal	2
	9S-8094	Plate Assembly, 38.1 mm (1 1/2 in)	4
	7F-8267	Seal	4
	9S-8095	Plate Assembly, 50.8 mm (2 in)	
	8F-6711	Seal	
	8	—	Block — Tool Holder
	9	6V-3073	Box Assembly
	10	6V-7029	Block — Lid

Assemblies

- Required to tap into pump supply line to provide inlet flow to flow meter
- To determine assembly number required for a machine model, refer to Section A of Tee Tool Chart, and then to list below

Assembly No.	Part No.	Description	Qty.
A-1	—	Adapter	3
A-1	2S-4078	O-ring ¹ (Part of 8S-9967)	1
A-1	2P-8336	Valved Nipple	3
A-2	9S-7336	Adapter	1
A-2	3D-2824	O-ring Seal ¹ (Part of 9S-7336)	1
A-2	9S-7337	Reducing Bushing	1
A-2	2P-8336	Valved Nipple	1
A-3	FT0828	Filter Adapter ²	1
A-4	2P-8336	Valved Nipple	1
A-4	1P-5596	Pipe Nipple	1
A-4	307976	Adapter — 45° Union	1
A-4	3D-2824	O-ring Seal	1
A-5	5P-2242	Tee	1
A-5	5P-2244	Union	1
A-5	1P-5597	Pipe Nipple ³ , 25.4 x 31.75 mm (1 x 1 1/4 in)	1
A-5	2P-8336	Valved Nipple ³	1
A-5	315744	Elbow, 90°	1
A-6	—	Hose	1
A-6	3B-7257	Bushing	1
A-6	043099	Fitting	1
A-6	2P-8337	Valved Coupler	1
A-7	307980	Adapter, 90°	2
A-7	—	O-ring Seal	2
A-7	1P-5598	Pipe Nipple	2
A-7	2P-8336	Valved Nipple	2
A-8	5P-3032	Adapter, 25.4 mm (1 in) hose	1



Assembly No.	Part No.	Description	Qty.
A-8	1P-5597	Pipe Nipple, 25.4 x 31.75 mm (1 x 1 1/4 in)	1
A-8	4F-7391	O-ring Seal	1
A-8	2P-8336	Valved Nipple	1
A-8	8S-9191	Bolt	4
A-8	1D-4717	Nut	4
A-9	5P-3033	Adapter, 31.75 mm (1 1/4 in) hose	1
A-9	1P-5597	Pipe Nipple, 25.4 x 31.75 mm (1 x 1 1/4 in)	1
A-9	4F-7952	O-ring Seal	1
A-9	2P-8336	Valved Nipple	1
A-9	7H-3472	Bolt	4
A-9	1D-4718	Nut	4

Assembly No.	Part No.	Description	Qty.
A-10	5P-3034	Adapter 38.1 mm (1 1/2 in) hose	1
A-10	1P-5598	Pipe Nipple ⁴ , 31.75 x 31.75 mm (1 1/4 x 1 1/4 in)	1
A-10	7F-8267	O-ring Seal	1
A-10	2P-8336	Valved Nipple ⁴	1
A-10	2H-6488	Bolt	4
A-10	1D-4719	Nut	4
A-11	044977	Elbow, 45°	1
A-11	2P-8336	Valved Nipple	1
A-11	8S-9967	Adapter	1

¹ Recommended spare parts

² Used on 977H, 955H, 933F and G

³ Use from A-8 Assembly No.

⁴ Use from A-7 Assembly No.

Brake and Steering Systems

Hydraulic System Tools

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Excavator ImplementImplements, Frame,
Hitch and Suspension**B — Return Line Assemblies**

- Return oil to hydraulic tank
- To determine assembly number required for a machine model, refer to Section B of Tee Test Tool Chart and following list



Assembly No.	Part No.	Description	Qty.
B-5	5P-3517	Tube Assembly	1
B-6	8S-9967	Adapter	1
B-6	2P-8335	Plain Coupler	1
B-6	6V-0001	Seal Kit (Part of 2P-8335)	1
B-7	3B-7750	Pipe Nipple	2
B-7	4J-3815	Gasket	1
B-7	1P-0058	Filler Return Group	1
B-7	2P-8337	Valved Coupler	2
B-7	6V-0001	Seal Kit (Part of 2P-8337)	1
B-8	3B-6555	Street Ell	1
B-8	3B-7749	Nipple	1
B-8	3B-7257	Bushing	1
B-8	9H-6454	Gasket	1
B-8	2P-8337	Valved Coupler	1
B-8	6V-0001	Seal Kit (Part of 2P-8337)	1
B-9	FT0794 ²	Return Line Cap Assembly	1
B-10	307980	Adapter, 90°	1
B-10	2S-4078	O-ring Seal	1
B-10	1P-5598	Pipe Nipple	2
B-10	2P-8335	Plain Coupler	2
B-10	6V-0001	Seal Kit (Part of 2P-8335)	1
B-11	FT1633	Return Line Cap Assembly	1
B-12	FT1634	Return Line Cap Assembly	1

¹ Use 2P-8337 Valved Coupler instead of discontinued 8S-9974

C — Tachometer Drive Group

- Required to attach Flow Meter Tachometer Generator to all machines which are adaptable to "Tee Testing"
- To determine assembly number required for a machine model, refer to Section C of Tee Test Tool Chart and then to list below

Assembly No.	Part No.	Description	Qty.
C-1 ¹	1M-5061	Tachometer Drive Group	1
C-1 ¹	1B-9575	Bolt	2
C-1 ¹	3B-4505	Lock Washer	2
C-2	5P-1759	Tachometer Adapter ⁶	1
C-2	—	Adapter Group (Part of 5P-1759)	1
C-2	4M-8303	Seal (Part of 5P-1759)	1
C-2	5P-1758	Shaft Assembly (Part of 5P-1759)	1
C-2	4N-0538	Coupling (Part of 5P-1759)	1
C-2	9S-0211	Clamp (Part of 5P-1759)	2
C-2	9S-3032	Clamp (Part of 5P-1759)	2
C-3 ²	1B-2714	Bolt (¼ in-20 x 2½ in)	2
C-3 ²	1D-4539	Bolt (⅝ in-18 x 2½ in)	2
C-3 ²	3B-4504	Lock Washer, 6.35 mm (¼ in)	2
C-3 ²	3B-4505	Lock Washer, 7.93 mm (⅝ in)	2
C-4 ³	2S-0424	Service Meter Group	1
C-4 ³	2B-2695	Bolt (⅝ in-18 x ⅞ in)	1
C-4 ³	1D-4539	Bolt (⅝ in-18 x 2½ in)	1
C-4 ³	3B-4505	Lock Washer, 7.93 mm (⅝ in)	2
C-5 ⁴	5P-0935	Adapter Group	1
C-5 ⁴	1B-7182	Bolts	2
C-6 ⁵	8N-5945	Tachometer Drive Adapter	1
C-6 ⁵	4M-8303	O-ring	1



Assembly No.	Part No.	Description	Qty.
C-6 ⁵	9S-3032	Clamp	2
C-6 ⁵	0S-1617	Bolt	2
C-6 ⁵	9M-1974	Washer	2
C-7 ⁷	6N-1345	Tachometer Drive Adapter	1
C-7 ⁷	4M-8303	O-ring	1
C-7 ⁷	5P-1758	Shaft Assembly	1
C-7 ⁷	9S-3032	Clamp	2
C-7 ⁷	0S-1617	Bolt	2
C-7 ⁷	9M-1974	Washer	2

¹ Used on very early 988 and 992 only

² Used on 977H, 955H, 933F and G and 966 with serial numbers below 75A-1092 only

³ Used on 977H machines not equipped with 2S424 Service Meters only

⁴ Used on D3, 910 and 931 only

⁵ Used on all U.S. production 3204 Engines

⁶ Included in 5P-8687 Tool Group

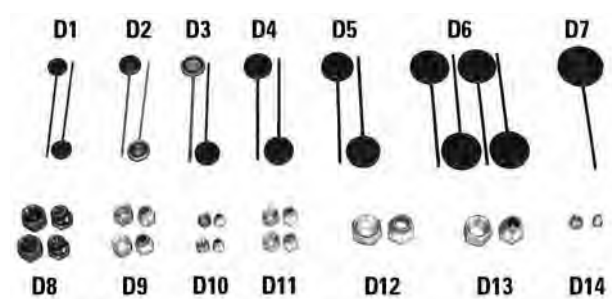
⁷ Used on 3204 Engines 10X-2936-up

***This article has changed
since the printing of the 2009
Dealer Service Tools Catalog.***

Vehicle System Tools

D — Blocking Plate Assemblies

- Available by ordering 5P-8687 Tool Group
- Isolate various system components when troubleshooting hydraulic system
- To determine assembly number required for a machine model, refer to the Service Manual for Testing Hydraulic Systems and Components, and then to the list below



Assembly No.	Part No.	Description	Qty.
D-1	9S-7358	Blocking Plate Assembly, 12.7 mm (1/2 in)	2 ¹
D-1	5F-7054	O-ring Seal	2
D-2	9S-8894	Blocking Plate Assembly, 15.87 mm (5/8 in)	2 ¹
D-2	4J-8996	O-ring Seal	2 ¹
D-3	9S-7359	Blocking Plate Assembly, 19.05 mm (3/4 in)	2 ¹
D-3	5F-1678	O-ring Seal	2 ¹
D-4	9S-8092	Blocking Plate Assembly, 25.4 mm (1 in)	2 ¹
D-4	4F-7391	O-ring Seal	2 ¹
D-5	9S-8093	Blocking Plate Assembly, 31.75 mm (1 1/4 in)	2 ¹
D-5	4F-7952	O-ring Seal	2 ¹
D-6	9S-8094	Blocking Plate Assembly, 38.1 mm (1 1/2 in)	4 ¹
D-6	7F-8267	O-ring Seal	4 ¹
D-7	9S-8095	Blocking Plate Assembly, 50.8 mm (2 in)	1 ¹
D-7	8F-6711	O-ring Seal	1 ¹
D-8	9S-8895	Plug (1 1/16 in-12 thd)	2 ¹
D-8	9S-8896	Cap (1 1/16 in-12 thd)	2 ¹
D-9	2P-9697	Plug (7/8 in-14 thd)	2 ¹
D-9	6J-7366	Cap (7/8 in-14 thd)	2 ¹
D-10	9S-8927	Plug (9/16 in-18 thd)	2 ¹
D-10	8S-4950	Cap (9/16 in-18 thd)	2 ¹
D-11	5P-2909	Plug (3/4 in-16 thd)	2 ¹
D-11	8S-4951	Cap (3/4 in-16 thd)	2 ¹
D-12	5P-2299	Plug (1 5/16 in-12 thd)	1 ¹
D-12	3R-6789	Cap (1 5/16 in-12 thd)	1 ¹
D-13	5P-4299	Plug (1 3/16 in-12 thd)	1 ¹
D-13	8L-9137	Cap (1 3/16 in-12 thd)	1 ¹
D-14	—	Plug (7/16 in-20 thd)	1 ¹
D-14	9L-8493	Cap (7/16 in-20 thd)	1 ¹

¹ Included in 5P-8687 Tool Group

E — Special Tools

- Available by ordering 5P-8687 Tool Group
- 2 special hex bits required to remove and install SAE O-ring plugs
- Wrench used to couple supply line adapters and some of return line assemblies



Assembly No.	Part No.	Description	Qty.
1	1P-3566	Bit-Tool, 14.29 mm (9/16 in)	1 ¹
2	9U-7419	Bit-Tool, 19.05 mm (3/4 in)	1 ¹
5	0V-0455	Wrench	1
6	6V-3073	Box Assembly	1 ¹
6	6V-7029	Block (Lid)	1 ¹
6	—	Block (Tool Holder)	1 ¹

¹ Included in 5P-8687 Tool Group

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Brake and Steering Systems

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Tee Test Tool Charts

Hydraulic Implement System — A-1 thru A-11											
Machine Model	A-1	A-2	A-3	A-4	A-5	A-6	A-7	A-8	A-9	A-10	A-11
D3						1					
D7G		1		1							
D8K	1			1							
D9H	1			1							
D10L	1	1									
613B		1									
621	1										
621B	1										
623		1						1			
623B	1			1							
627	1										
627B	1										
631C	1										
631D	1										
633	1								1		
633D	2									1	
641B	1										
650B	1										
651B											
657B	1										
660B	1										
666B	1										
814		1									
815		1									
816		1									
824	1										
825B	1										
826B	1										
834	1										
835	1										
931						1					
941		1									
943,953		1									
951		1									
955	1		1								
977	1		1								
983	1										
518				1							
528		1									
910		1									
920		1									
930		1									
950	1										
966	1										
980	1										
988	1										
992	2						2 ²				
992C	1									1	
120G					1						
130G					1						

Machine Model	A-1	A-2	A-3	A-4	A-5	A-6	A-7	A-8	A-9	A-10	A-11
140G					1						
12G					1						
14G	1				3						
16G	1				3						
215	2										
225	3										
235	3										
245	3										1 ⁴

¹ See “Adapter for Hydraulic System Component Testing”

² Machines with ROPS cabs only

³ Required on early machines with “Tee Taps”

⁴ Machines with serial numbers 95V960-Up, 82X543-Up, 94L443-Up and 84X555-Up

Hydraulic Implement System — B								
Machine Model	B-5	B-6	B-7	B-8	B-9	B-10	B-11	B-12
D3				1				
D7G	1			1				
D8K	1			1				
D9H	1			1				
D10L					1			
613B		1						
621		1						
621B		1						
623		1						
623B		1						
627		1						
627B		1						
631C		1						
631D		1						
633		1						
633D		1						
641B		1						
650B		1						
651B		1						
657B		1						
660B		1						
666B		1						
814		1						
815		1						
816		1						
824		1						
825B		1						
826B		1						
834		1						
835		1						
931			1					
941			1					
943,953		1						
951			1					
955			1					
977			1					
983			1				1	
518			1				1	
528				1		1		
910			1				1	
920		1						
930		1						
950		1						
966		1						
980		1						

Brake and Steering Systems

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Machine Model	B-5	B-6	B-7	B-8	B-9	B-10	B-11	B-12
988		1						
992			1					
992C					2			
120G		1						
130G		1						
140G		1						
12G		1						
14G		1						
16G		1						
215		1	1					
225		1	1					
235		1	1					
245		1	1					

¹Machines with ROPS cabs only²See "Adapter for Hydraulic System Component Testing"

Hydraulic Implement System — C							
Machine Model	C-1	C-2	C-3	C-4	C-5	C-6	C-7
D3		1			1		
D7G		1					
D8K		1					
D9H		1					
D10L		1					
814		1					
815		1					
816		1					
824		1					
825B		1					
826B		1					
834		1					
835		1					
931					1		
941		1					
943,953						1	1
951		1					
955		1					
977		1		1			
983		1					
518		1					
528		1					
910					1		
920		1					
930		1					
950		1					
966		1		1			
980		1					
988	¹	1					
992	¹	1					
120G		1					
130G		1					
140G		1					
12G		1					
14G		1					
16G		1					
215							1
245		1					

¹Required on early machines without "Tee Taps."

Steering Systems — A-1 thru A-11					
Machine Model	A-1	A-2	A-4	A-7	A-11
920		1			
930		1			
966		1			
988	1				
992C				1	
814		1			
815		1			
816		1			
621B					1
623B					1
627B					1
631D					1
633D	1				
637D					1
528			1		

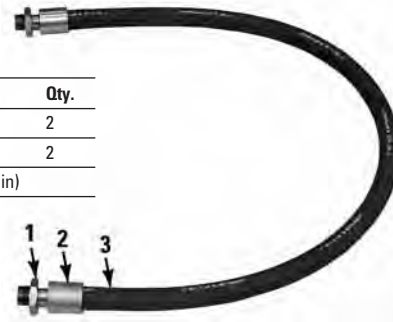
Steering Systems — B thru C			
Machine Model	B-6	B-9	C-2
920	1		1
930	1		1
966	1		1
988	1		1
992C	1		
814			1
815			1
816			1
621B	1		
623B	1		
627B	1		
631D	1		
633D	1		
637D	1		
528		1	1

2P-2349 Hose Assembly

Discontinued — Service/Repair Parts Available

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Item	Part No.	Description	Qty.
1	2P-0922	Stem Assembly	2
2	3S-7116	Sleeve	2
3	—	Hose 200 cm (80 in)	



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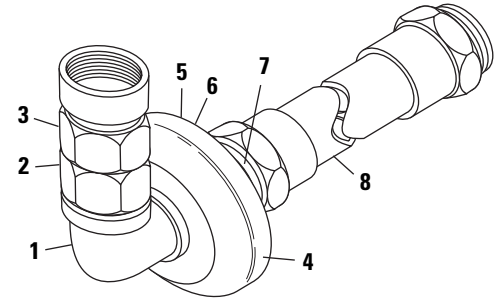
FT0794 Return Line Cap Assembly

SMCS Code: 5050-038
Model: See Tee Test Tool Charts
Warranty: None

- Use of this fabricated tool indicated under B in Tee Test Tool Chart

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Item	Part No.	Description
1	2P-8337	Valved Coupler
2	3B-7750	Pipe Nipple
3	3B-6556	Street Elbow
4	4J-3754	Filler Cap
5	4J-3816	Plate
6	4J-3815	Gasket
7	1F-9178	Coupling (1.25 in NPT)
8	—	Flex Oil Line

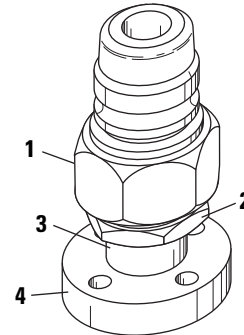


FT0828 Filter Adapter

SMCS Code: 5050-038
Model: See Tee Test Tool Charts
Warranty: None

- Use of this fabricated tool indicated under A-3 in Tee Test Tool Chart

Item	Part No.	Description
1	2P-8336	Valved Nipple
2	3B-7257	Bushing
3	—	25.4 mm (1 in) Extra Heavy Pipe Nipple, 50.8 mm (2 in) Long
4	3J-8769	Flange

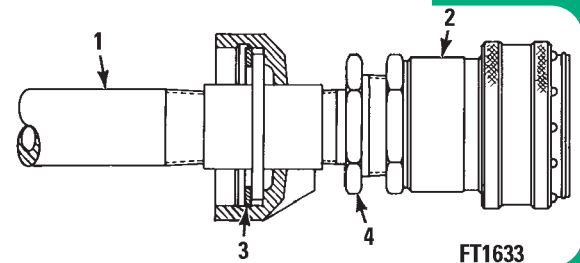


Return Line Cap Assemblies

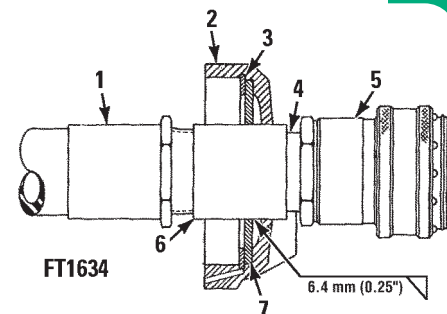
SMCS Code: 5050-038
Model: See Tee Test Tool Charts
Warranty: Six Months

- Use of these fabricated assemblies indicated under B-12 (FT1633) and B-11 (FT1634) respectively, in Tee Test Tool Chart
- Can be used in same applications as assemblies D8 and D9 and permit easier installation of tee test flow block

FT1633 Return Line Cap Assembly		
Item	Part No.	Description
1	—	Filler Return
2	2P-8337	Coupler Assembly
3	9H-6454	Gasket
4	1P-5597	Pipe Nipple



FT1634 Return Line Cap Assembly		
Item	Part No.	Description
1	—	Oil Line-Flex
2	4J-3754	Filler Cap
3	4J-3815	Gasket
4	3B-7750	Pipe Nipple
5	2P-8337	Coupler Assembly
6	1F-9178	Coupling
7	4P-3816	Plate



This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

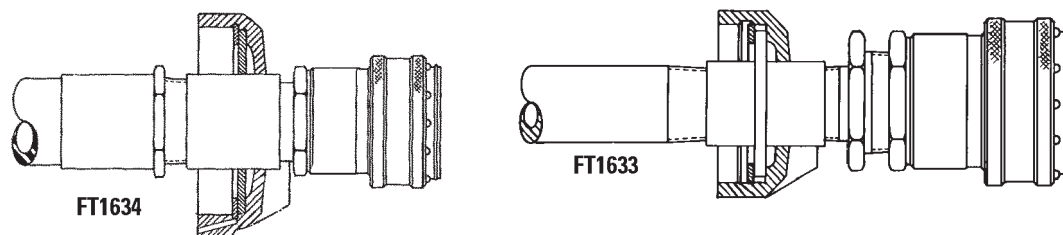
Return Line Cap Assemblies

SMCS Code: 5050-038

Model: See Tee Test Tool Charts

Warranty: Six Months

- Use of these fabricated assemblies indicated under B-12 (FT1633) and B-11 (FT1634) respectively, in Tee Test Tool Chart
- Can be used in same applications as assemblies D8 and D9 and permit easier installation of tee test flow block



Connector Plates for Hydraulic System Flushing

SMCS Code: 5050-046

Model: Most Caterpillar Models

Warranty: Six Months

- Used for flushing hydraulic systems on Caterpillar machines
- Used between hose flanges which are joined together during flushing process; provide sealing surface for O-ring seals in flange faces

Plate	Bolt Hole Spacing	Bolt Hole Diameter	Center Hole Diameter	Thickness
5C-2268	23.80 x 50.80 mm (0.937 x 2.000 in)	10.49 mm (0.413 in)	19.05 mm (0.75 in)	5.99 mm (0.236 in)
8K-4977	27.76 x 57.15 mm (1.093 x 2.250 in)	11.99 mm (0.472 in)	25.40 mm (1.00 in)	6.71 mm (0.264 in)
8K-2574	31.75 x 66.68 mm (1.250 x 2.625 in)	13.13 mm (0.517 in)	31.75 mm (1.25 in)	6.35 mm (0.250 in)
5P-9707 ¹	36.50 x 79.38 mm (1.437 x 3.125 in)	16.66 mm (0.656 in)	38.10 mm (1.50 in)	6.35 mm (0.250 in)

¹ Use 235 and 245 Excavators

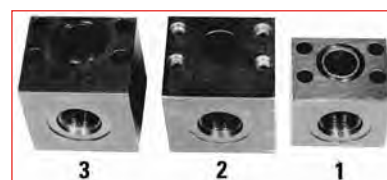
Flowmeter Adapters

SMCS Code: 5050-038

Model: All Models

Warranty: Six Months

- Used to connect flowmeter into a hydraulic circuit
- Allows testing of pump flow rate without removing pump from machine, saving time and money
- Perform flow test on hydraulic systems of Caterpillar and competitive machines
- Each adapter is through drilled with 90° intersecting port
- 3 ports allow the adapter to be used as a straight through or 90° connection
- 2 through ports can be connected into the system, leaving third port for pressure or flow rate tap
- 1 end of the through hole and intersecting port are SAE 16 O-ring ports (1½-12), making the ports compatible with Caterpillar high pressure fittings
- 1 series of adapter has holes for 4-bolt flanges
- 1 series of adapter has tapped holes which allow a flowmeter to be connected to pump outlet hose
- Pressure rating: 41,340 kPa (6,000 PSI)



Item	Part No.	Description
1	9U-5273	Adapter, 25.4 mm (1 in) flange
2	9U-5272	Adapter, 31.75 mm (1.25 in) flange
3	9U-5936	T-Test Adapter, 31.75 mm (1.25 in) hose
Service/Repair Parts		
	1P-3704	D-ring used on 9U-5272
	1P-3703	D-ring used on 9U-5273

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Tee Test Adapters

SMCS Code: 5050-038
Model: Most Caterpillar Models
Warranty: Six Months

- Used to perform Tee Tests on Caterpillar or competitive machines which are not equipped with Tee Test taps in pump outlet line
- Each adapter through-drilled with 90° intersecting port which allows adapter to be used as straight-through or 90° connection with remaining port being used for Tee tap
- Intersecting port and one end of through-drilled hole are tapped with NPTF threads to facilitate installation of pipe nipples and valved nipples for connection to Tee Test hose
- All 3 ports have 4 bolt holes for connecting pump outlet hoses with 4 bolt flanges; since the 4 bolt flange holes for through-drilled passage are also through-drilled, longer bolts are required to install adapters
- Bolts listed with associated parts and nuts which allow convenient storage of bolts in adapter
- Correct O-ring seal for inlet port of each adapter given in figure below
- Instructions for using adapters on future Caterpillar machines not equipped with Tee taps will be covered in the Service Manual

Required Associated Parts	
Part No.	Description
5P-3033 Adapter, 31.75 mm (1¼ in) hose	
2P-8336	Valved Nipple
1P-5597	Pipe Nipple, 25.4 x 31.75 mm (1 x 1¼ in)
4F-7952	O-ring Seal
7H-3472	Bolt (4)
1D-4718	Nut (4)
5P-3032 Adapter, 25.4 mm (1 in) hose	
1P-8336	Valved Nipple
1P-5597	Pipe Nipple, 25.4 x 31.75 mm (1 x 1¼ in)
4F-7391	O-ring Seal
8S-9191	Bolt (4)
1D-4717	Nut (4)
5P-3034 Adapter, 38.1 mm (1½ in) hose	
2P-8336	Valved Nipple
1P-5598	Pipe Nipple, 31.75 x 31.75 mm (1¼ x 1¼ in)
7F-8267	O-ring Seal
2H-6488	Bolt (4)
1D-4719	Nut (4)



146-3661 Hydraulic Test Adapter

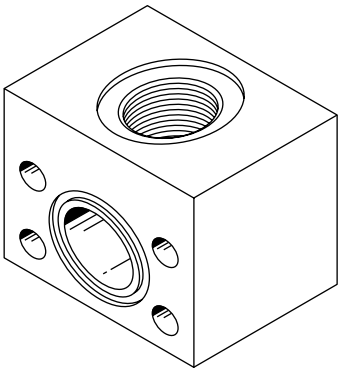
SMCS Code: 5070-036
Model: M312, M315, M318, and M320 Wheeled Excavators
Essential Tool
Warranty: Six Months

- Used to connect flowmeter return line into hydraulic circuit
- Test pump flow rate without removing pump from machine
- Directs oil from flowmeter through oil cooler (prevents overheating during pump testing)
- Adapter is through-drilled with 90 degree intersecting port

Reference

SEN6261, Testing and Adjusting
M300 Family Excavators
Hydraulic Systems

Female connection (STOR)	Dash Size - 16, 1½-12 thread
Through hole connection	Code 61 Split Flange
Hole size	30.0 mm (1.181 in)
Fits flange dash size	20
Fits head size	50.8 mm (2.0 in)
Use 4J-0522	O-ring seal



Quick Disconnect Couplings for Hydraulic Test Equipment

SMCS Code: 5050-036

Model: Most Caterpillar Models

Warranty: Six Months

- All quick disconnect couplings used for Caterpillar hydraulic test equipment summarized in chart
- Disconnects rated by operating pressure, pressure at which no failure expected to occur in normal cyclic usage
- Couplings listed within each group are interchangeable



Item	Part No.	Description	Type	Connection Thread (Type)	Nominal Size	Operating Pressure
1	2P-8334	Nipple	Open	1¼ NPT (Int)	1¼ in	34,500 kPa (5000 PSI)
2	2P-8334	Nipple	Open	1¼ NPT (Int)	1¼ in	34,500 kPa (5000 PSI)
3	2P-8335	Coupler	Open	1¼ NPT (Int)	1¼ in	34,500 kPa (5000 PSI)
4	2P-8336	Nipple	Valved	1¼ NPT (Int)	1¼ in	34,500 kPa (5000 PSI)
Not shown						
	2P-8337	Coupler	Valved	1¼ NPT (Int)	1¼ in	34,500 kPa (5000 PSI)
	6V-4143	Coupler	Valved	½ NPT (Int)	¼ in	41,500 kPa (6000 PSI)
	6V-4144	Coupler	Valved	¼ NPT (Int)	¼ in	41,500 kPa (6000 PSI)
	6V-3966	Nipple	Valved	¼ NPT (Ext)	¼ in	41,500 kPa (6000 PSI)
	6V-4142	Nipple	Open	½ NPT (Int)	¼ in	41,500 kPa (6000 PSI)
	6V-3965	Nipple	Valved	⅝ SAE (Ext)	¼ in	41,500 kPa (6000 PSI)
	6V-3989	Nipple	Open	¼ NPT (Int)	¼ in	41,500 kPa (6000 PSI)
	3P-2232	Coupler	Valved	⅜ NPT (Int)	⅜ in	20,700 kPa (3000 PSI)
	3P-2233	Coupler	Valved	⅜ NPT (Ext)	⅜ in	20,700 kPa (3000 PSI)
	3P-2234	Nipple	Valved	⅜ NPT (Int)	⅜ in	20,700 kPa (3000 PSI)
	3P-2235	Nipple	Open	⅜ NPT (Int)	⅜ in	20,700 kPa (3000 PSI)
	3P-2236	Nipple	Open	⅜ NPT (Ext)	⅜ in	20,700 kPa (3000 PSI)
	1P-2375	Nipple	Valved	⅜ NPT (Ext)	⅜ in	69 000 kPa ¹ (10,000 PSI) ¹
	1P-2376	Coupler	Valved	¼ NPT (Int)	⅜ in	69 000 kPa ¹ (10,000 PSI) ¹
	2P-8335	Coupler	Open	1¼ NPT (Int)	1¼ in	12,070 kPa (1750 PSI)
	2P-8336	Nipple	Valved	1¼ NPT (Int)	1¼ in	12,070 kPa (1750 PSI)
	2P-8337	Coupler	Valved	1¼ NPT (Int)	1¼ in	12,070 kPa (1750 PSI)

¹ Normal Service Press coupled operation only

Quick Disconnect Couplings for Pressure Testing Up to 41,500 kPa (6000 PSI)

SMCS Code: 5050-036

Model: Most Caterpillar Models with pressure up to 41,500 kPa (6000 PSI)

Warranty: Six Months

- Small quick disconnect couplings with good sealing ability for pressures up to 41,500 kPa (6,000 PSI)
- Valved nipples can be permanently installed in test points of current Caterpillar hydraulic, transmission, engine oil, or cooling systems so that pressures can be quickly determined throughout machine
- 2 types of valved couplers available for connecting gauges, hoses, and snubber valves to valved nipples on machine
- 2 additional plain nipples available for hose to gauge or snubber valve to gauge connection



Item	Part No.	Description
Valved Couplers		
1	6V-4144	Valved Coupler, Internal, ¼ in NPT
2	6V-4143	Valved Coupler, Internal, ⅝ in NPT
	301-7445	Valved Coupler, Internal, ⅝ in-18 STOR
Valved Nipples		
3	6V-3965	Valved Nipple, External, ⅝ in SAE thd
4	6V-3966	Valved Nipple, External, ¼ in NPT
Not shown	8T-3613	Valved Nipple, External, ⅝ in NPT
Plain Nipples		
5	6V-3989	Plain Nipple, Internal, ¼ in NPT
6	6V-4142	Plain Nipple, Internal, ⅝ in NPT

Not shown		
High Temp. Valved Nipples		
6V-4433	Valved Nipple, External, ⅝ in SAE thd	
Auto Brake Fluid Valved Nipples		
6V-7691	Valved Nipple, External, ¼ in NPT	
8T-3614	Valved Nipple, External, ⅝ in NPT	
Auto Brake Fluid Valved Coupler		
6V-7690	Valved Coupler, Internal, ¼ in NPT	
ORFC Valved Nipple		
8C-6416	Valved Nipple, ORFC; use with 6V-8554 Nut	

NOTE: 6V-0852 Protective Dust Caps are available for the 6V-3965 and 6V-3966 Valved Nipples

Quick Disconnect Couplings and Hoses for Pressure Testing Up to 68,950 kPa (10,000 PSI)

SMCS Code: 5050

Model: M300 Series Wheeled Excavators; 953C, 963C, 973C, 933, and 939 Track Loaders; and D3C, D4C, D5C, D6R, D7R, D8R, and D9R Differential Steering Track-Type Tractors

Warranty: Six Months

- Used to diagnostically test any component or machine requiring 68,950 kPa (10,000 PSI) hoses and fittings
- Highest pressure-rated hose and fittings of this type in the industry
- Rated at 4:1 minimum burst pressure

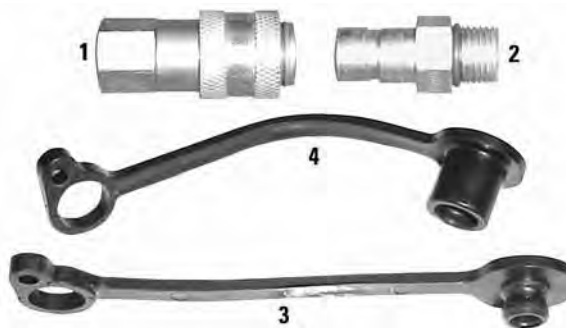
Quick Disconnect and Hoses

- Used to diagnostically test pumps and transmissions rated at 68,950 kPa (10,000 PSI)
- Used with 344-7922, 344-7923, and 344-7924 Hose Assemblies
- Valved coupler and nipple will not interchange with lower pressure 41,500 kPa (6,000 PSI) nipple and coupler
- Hoses made of tough thermoplastic material

Dust Cap and Plug

- Used to provide contamination protection
- Used with 187-3546 Coupler and 183-3547 Nipple
- Made of plastic compound

Pressure rating	68,950 kPa (10,000 PSI)
Minimum hose burst ratio rating	4:1
Nipple threads	9/16-18, male STOR
Coupler threads	9/16-18, female STOR
Hose end threads	9/16-18, male STOR
Hose inside diameter	4.78 mm (0.188 in)



Item	Part No.	Description
1	187-3546	Quick Disconnect Coupler
2	187-3547	Quick Disconnect Nipple
3	187-9010	Dust Plug
4	187-9008	Dust Cap
Not shown		
	344-7922	Hose Assembly, 3.1 m (10.0 ft)
	344-7923	Hose Assembly, 4.3 m (14.0 ft)
	344-7924	Hose Assembly, 5.5 m (18.0 ft)

Quick Disconnect Couplers and Nipples Flow Test Fittings and Thread Adapters Hose End Fittings

SMCS Code: 0774-012, 0784-012, 0784-030, 0784-032, 5050-032, 5050-082, 5057-016, 5057-078, 5057-082

Model: All Models

Warranty: Six Months

Quick Disconnect Couplers and Nipples

- Used to quickly connect high pressure hoses (extensively used for hydraulic flow testing with hydraulic test benches and portable flow meters, for hydraulic hammers on excavators, and any application where high pressure quick disconnects are needed)
- Designed as screw-to-connect high pressure fittings (will not come uncoupled during rugged use or abuse)
- Burst pressure provides 3½ to 1 safety factor
- All fittings valved for clean, non-spill field application
- Dust caps and dust plugs available where dirt and other contaminants are present
- Repair kits available for all sizes and contain all seals to overhaul quick disconnects
- Used with 1U-9551 Portable Hydraulic Flowmeter and 1U-8761 Portable Hydraulic Flowmeter

Flow Test Fittings and Threaded Adapters

- Used to adapt various applications when STOR, ORFS, or metric threads are present

Hose End Fittings

- Used to make hydraulic hoses for field flow testing, test benches, or shop oil filtering
- Used with 5P-1010 and 5P-0477 XT5 Sleeves (assembled with Caterpillar Hose Press Tooling)
- Helps eliminate leaks and need for additional thread adapters
- Available with STOR (Straight Thread O-ring) style threads

Reference

NEHT5000, Tool Operating Manual

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Quick Disconnect Couplers and Nipples

Working pressure of all couplers and nipples	41,340 kPa (6000 PSI)
Flow rate	303 lpm (80 gpm) with a 690 kPa (100 PSI) pressure drop
Operating pressure	41,340 kPa (6000 PSI)
Burst pressure	137,800 kPa (20,000 PSI)
Connection	for 9U-5075 and 9U-5076 19.05 mm (¾ in) NPT female port for 4C-6481 and 4C-6482 1½ in-12 STOR for 4C-5093 and 4C-5094 1½ in-12 STOR

Coupler and Nipple Usage Chart

Size	Description	Part No.	Dust Cap	Dust Plug	Repair Kit
19.05 mm (¾ in)	Coupler	9U-5076	—	9U-5083	—
19.05 mm (¾ in)	Nipple	9U-5075	9U-5085	—	9U-5080
25.4 mm (1 in)	Coupler	4C-6481	—	9U-5084	9U-5078
25.4 mm (1 in)	Nipple	4C-6482	9U-5086	—	9U-5081
31.75 mm (1¼ in)	Coupler	4C-5094	—	—	9U-5079
31.75 mm (1¼ in)	Nipple	4C-5093	—	—	9U-5082

Thread Adapters

Working pressure	41,340 kPa (6,000 PSI)
4C-5092 Coupling	1½ in-12 Internal STOR x 1½ in-12 External STOR
4C-5088 Coupling	25.4 mm (1 in) NPT Internal Pipe thd x 1½ in-12 External STOR
4C-5087 Coupling	1½ in-12 x 1½ in-12 STOR Male Union

Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

Implements, Frame, Hitch and Suspension

Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

Implements, Frame, Hitch and Suspension

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Item	Part No.	Description	Size
1	9U-5076	QD Coupler	19.05 mm (3/4 in)
2	9U-5083	Dust Plug	19.05 mm (3/4 in)
3	9U-5085	Dust Cap	19.05 mm (3/4 in)
4	9U-5075	QD Nipple	19.05 mm (3/4 in)
5	4C-6481	QD Coupler	25.4 mm (1 in)
6	9U-5084	Dust Plug	25.4 mm (1 in)
7	9U-5086	Dust Cap	25.4 mm (1 in)
8	4C-6482	QD Nipple	25.4 mm (1 in)
9	4C-5094 ¹	QD Coupler	31.75 mm (1 1/4 in)
10	4C-5093 ²	QD Nipple	31.75 mm (1 1/4 in)

¹ 263-2839 Dust Cap

² 201-8057 Dust Cap

Not shown			
	9U-5080	Nipple Repair Kit	19.05 mm (3/4 in)
	9U-5078	Coupler Repair Kit	25.4 mm (1 in)
	9U-5081	Nipple Repair Kit	25.4 mm (1 in)
	9U-5079	Coupler Repair Kit	31.75 mm (1 1/4 in)
	9U-5082	Nipple Repair Kit	31.75 mm (1 1/4 in)

Flow Test Fittings

Working pressure	41,340 kPa (6,000 PSI)
4C-5089 Elbow	1 1/16 in-12 STOR x 1 1/16 in-12 ORFS 90° Swivel
4C-5090 Coupling	1 1/16 in-12 STOR (M30 x 2) Swivel
4C-5091 Coupling	1 1/16 in-12 STOR (M30 x 2)

Hose End Fittings

Working Pressure	41,340 kPa (6,000 PSI)
4C-8767 Coupling	25.4 mm (1 in) XT5 Hose x 1 1/16 in-12 External STOR with O-ring
4C-6461 Coupling	31.75 mm (1 1/4 in) XT5 Hose x 1 1/8 in-12 External STOR with O-ring
4C-6462 Coupling	31.75 mm (1 1/4 in) XT5 Hose x 1 5/16 in-12 External STOR with O-ring



Quick Disconnect Couplers and Nipples



Flow Test Fittings and Thread Adapters

Item	Part No.	Description
1	4C-5088	Coupling
2	4C-5087	Coupling
3	4C-5091	Coupling
4	4C-5090	Coupling
5	4C-5089	Elbow
6	4C-5092	Coupling



Hose End Fittings

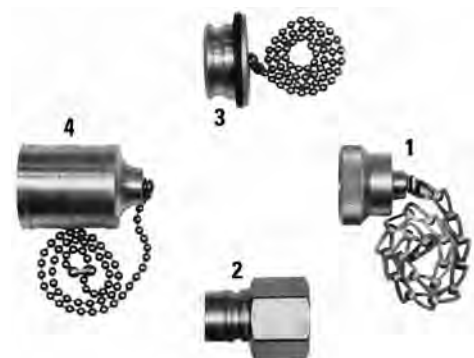
Item	Part No.	Description
1	4C-8767	Hose Coupling
2	4C-6461	Hose Coupling
3	4C-6462	Hose Coupling

Dust Cap, Plug, and Nipple Assembly

Model: All Caterpillar Machines

Warranty: Six Months

- Used to seal valved and non-valved nipples and couplings
- Provide positive sealing and padded protection for nipples and couplings



7X-7646 Nipple Assembly

Low pressure quick disconnect nipple	
Working pressure	3000 PSI
Burst pressure	12,000 PSI

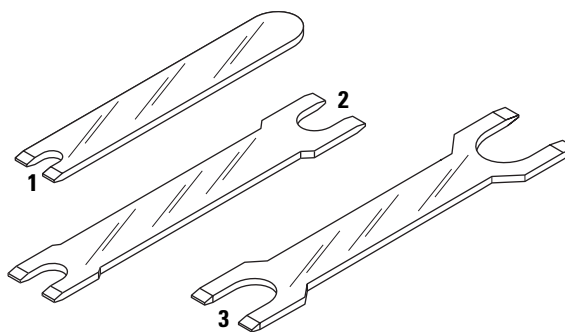
Item	Part No.	Description	Use
1	7X-7645	Dust Cap	7X-7646 Nipple Assembly, 8C-9024 Nipple Assembly
2	7X-7646	Nipple Assembly	Machines, tool groups, and dealer shop equipment
3	7X-7647	Dust Plug	8C-9025 Coupler
4	7X-7648	Dust Cap	8C-7545 Nipple Assembly

304-1165 Tool Kit

SMCS Code: 5050-076
Model: 450E Backhoe Loader
Essential Tool
Warranty: Six Months

NEW TOOL

- Used to properly disconnect snap-to-connect hydraulic fittings during service procedures
- Comes in pouch which includes 3 wrenches for 5 coupler sizes



Reference

KENR5485, Power Train Disassembly and Assembly Service Manual

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Service/Repair Parts

Item	Part No.	Description	Size
1	304-1166 ¹	STC Wrench	-06
2	304-1167 ¹	STC Wrench	-08 and -10
3	304-1168 ¹	STC Wrench	-12 and -16
Not shown	304-2721 ¹	Tool Pouch	—

¹ Not serviced

8T-5114 Adapter Assembly

8T-5115 Hose Assembly

SMCS Code: 1636-082, 4112-082, 5069-082, 5070-082, 5072-036
Model: 205, 206, 211, 212, 213, 214 and 224 Excavators
Warranty: Six Months

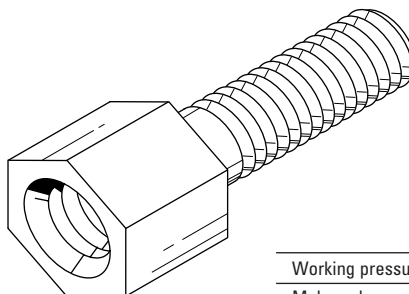
- Needed when pressure testing hydraulic excavators
- Both have working capacity of 41,400 kPa (6,000 PSI)
- 8T-5115 Hose Assembly has M16X2-6H female threaded couplings, which are compatible with pressure nipples on the hydraulic excavators
- 8T-5114 Adapter Assembly has M16X2-6G male threads and 3/16-18-2B female threads
- 8T-5114 used with 6V-3965 Nipple makes 8T-5115 Hose Assembly and pressure nipples on machines compatible with standard Quick Disconnect Couplings used on Caterpillar test equipment; 8T-5114 Adapter Assembly and 6V-3965 Nipple must always be installed in one end of 8T-5115 Hose Assembly before attaching hose assembly to pressure nipple on machines



126-3993 Test Adapter

SMCS Code: 4351-036
Model: M312, M315, M318, M320 Wheeled Excavators
Warranty: Six Months

- Used to test and adjust travel motor de-stroke point
- Adapter has #6 SAE O-ring port for 6V-3965 Valved Quick Disconnect Nipple and 3J-1907 O-ring Seal
- Allows use of standard quick disconnect couplers used on Caterpillar test equipment



Working pressure	41,500 kPa (6,000 PSI)
Male end	M12 x 1.0 thread
Female end	#6 SAE O-ring port

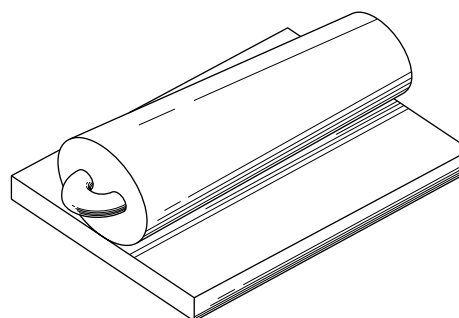
Reference

SEN6261, Testing and Adjusting M300 Family Excavators Hydraulic Systems

FT2788 Blocker Pin

SMCS Code: 4351-036
Model: 307C Excavator
Warranty: None

- Used to prevent machine movement during travel motor relief valve test
- Material: SAE1018 steel



Reference

307C System Operation, Test and Adjust

Hydraulic Hose for Diagnostic Testing

SMCS Code: 5050-036

Model: Most Caterpillar Models

Warranty: Six Months

- Designed for diagnostic test applications primarily with 5P-3600 Flow Meter and **discontinued** 6V-4160 Transmission Test Groups
- Lightweight, easy to coil and resist expansion, minimizing accumulator effect

Part No.	Pressure Rating	Thread Connections	Hose Inside Diameter	Hose Length
177-7860	41,500 kPa (6000 PSI)	1/8-27-NPTF (both ends)	3.2 mm (0.12 in)	304 cm (10 ft)
1U-5757	41,500 kPa (6000 PSI)	1/8-27-NPTF 7/16-20-thread	2 mm (0.08 in)	183 cm (6 ft)
177-7861	41,500 kPa (6000 PSI)	1/8-27-NPTF (both ends)	3.2 mm (0.12 in)	427 cm (14 ft)
177-7862	41,500 kPa (6000 PSI)	1/8-27-NPTF (both ends)	3.2 mm (0.12 in)	549 cm (18 ft)

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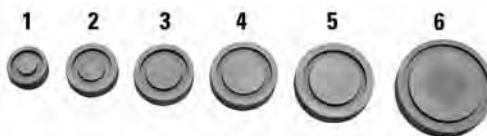
Blocking Covers for Hydraulic Components

SMCS Code: 5050-036

Model: Most Caterpillar Models

Warranty: Six Months

- Used to provide correct fit in the 4 bolt flanges when disconnecting hydraulic hose on machines equipped with XT-5 Hose (34,500 kPa [5,000 PSI]) hydraulic system
- With these covers installed, full system pressure can be applied without loss of hydraulic fluid or damage to seal
- Can also be used to isolate relief valve pressure readings



Item	Blocking Cover	Seal	Hydraulic Hose Size
1	5P-0045	1P-3700	12.7 mm (0.5 in)
2	5P-0046	1P-3702	19.05 mm (0.75 in)
3	5P-0047	1P-3703	25.4 mm (1.0 in)
4	5P-0048	1P-3704	31.75 mm (1.25 in)
5	5P-0049	1P-3705	38.1 mm (1.5 in)
6	5P-0050	1P-3709	50.8 mm (2.0 in)

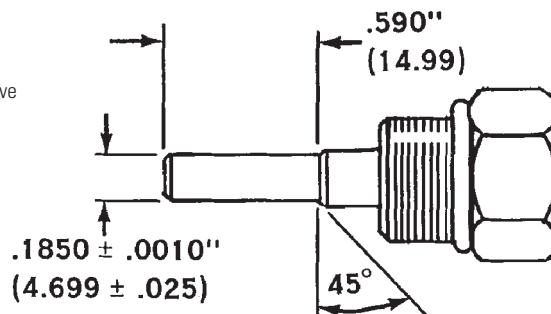
5P-2683 Stop

SMCS Code: 5050-036

Model: 12G, 14G, 16G, 130G and 140G Motor Graders

Warranty: Six Months

- Used to block pump servo valve when testing maximum pressure relief valve on 14G and 16G Motor Graders
- Stop assembly can be modified, as indicated below, so it can be used to obtain maximum pressure relief valve setting when tee testing 12G, 130G and 140G Motor Graders



Medium Pressure Quick Disconnect Couplings

SMCS Code: 5050-036

Model: Most Caterpillar Models

Warranty: Six Months

- Replacement parts for earlier adapters for hydraulic system component testing
- Use of these components should be limited to testing at pressures below 34,500 kPa (5,000 PSI)

Item	Part No.	Description
1	2P-8334	Nipple, 1 1/4 in Plain 1 1/4 in NPT
2	2P-8335	Coupler ¹ , 1 1/4 in Plain 1 1/4 in NPT
3	2P-8336	Nipple, 1 1/4 in Valved with 1 1/4 in NPT
	190-8319	Nipple, 1 in Valved with 1 in NPT
	190-8317	Nipple, 1 in Valved with 1 1/4 in NPT
4	2P-8337	Coupler ¹ , 1 1/4 in Valved with 1 1/4 in NPT
		190-8316 Coupler, 1 in Valved with 1 1/4 in NPT
		190-8318 Coupler, 1 in Valved with 1 in NPT

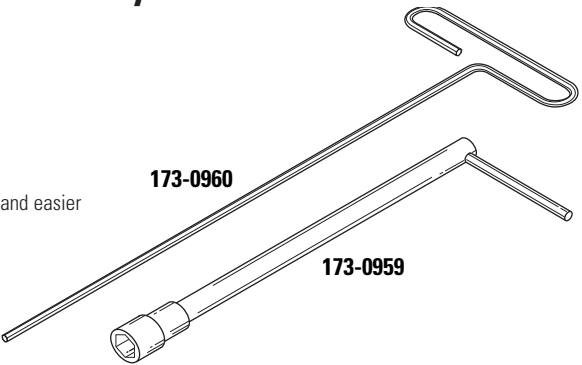
¹ 8S-9976 Repair Kit is available

173-0959 Relief Adjustment Wrench Assembly

173-0960 T Handle Hex Wrench

SMCS Code: 5050-025, 0738, 525
Model: HH45, HH55, HH65, and HH75 Skogsjan Tree Harvester Heads
Warranty: Six Months

- Used to adjust bypass relief valve (both tools used together)
- Easy one-hand operation makes adjustment procedure much faster and easier
- Eliminates need for open end wrenches
- Used in tight spaces where conventional tools will not work
- Socket size: 14 mm (0.55 in)
- Hex wrench: 4 mm (0.15 in)



9U-5841 Needle Valve

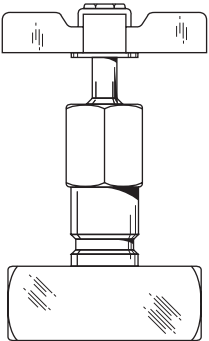
SMCS Code: 5070-036
Model: All Challengers
Warranty: Six Months

- Used in circuit when testing and adjusting hydraulic pump margin pressure
- Used with FT2220 Hydraulic System Test Hose Assembly
- May be used in any hydraulic circuit with pressure of 34,450 kPa (5000 PSI) or less
- Valve body made from steel; needle from stainless steel

References

SEN3346, Service Manual
SEN4969, Service Manual

Maximum flow	57 lpm (15.0 gpm)
Maximum pressure	34,450 kPa (5,000 PSI)
Pressure at maximum flow	330 kPa (48.0 PSI)
Port size	1/2-12 NPTF



Fitting Groups — JIC and ORFS

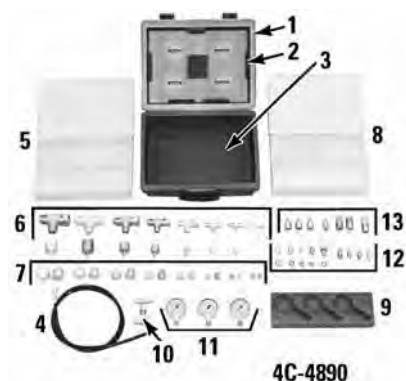
SMCS Code: 5050-036; 0784
Model: All Models
Warranty: Six Months

- 4C-4890 JIC Fitting Group replaces discontinued 6V-4161 Pressure Gauge Kit; 4C-4890 contains essentially the same fittings as discontinued 6V-4161 but costs less
- 4C-4890 and 4C-4892 Fitting Groups used to pressure test pilot, main hydraulic and steering systems on all Caterpillar products; can be used on competitive machines when JIC or ORFS fittings are needed
- Compact, time-saving fitting kits
- Included with tees, plugs, caps, adapters, hose, valve and quick disconnects are 3 oil-filled gauges with test ranges of 4,000 kPa (580 PSI), 25,000 kPa (3600 PSI) and 60,000 kPa (8,700 PSI)
- Packaged in lightweight, durable carrying case containing 2 modular fitting boxes; limited space for expansion of number and type of fittings; lid decals list each fitting part number, description and location
- Groups 4C-4890 and 4C-4892 include all items in figures

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and AssemblyMotor Grader Controls,
Cable Control and WinchLoader Lift Arm and
Excavator ImplementImplements, Frame,
Hitch and Suspension

Item	Part No.	Description
1	4C-3975	Plastic Case
2	4C-3721	Foam Block
3	4C-3719	Foam Block
4	1U-5757	Hose Assembly
5	4C-3725	Utility Box
6		Swivel Tees and Reducers:
	5P-2242	Swivel Tee (1 $\frac{1}{16}$ JIC)
	5P-5003	Reducer (7 $\frac{1}{16}$ JIC Ext. x 1 $\frac{1}{16}$ JIC Int.)
	5P-4984	Swivel Tee (1 $\frac{1}{16}$ JIC)
	5P-5004	Reducer (7 $\frac{1}{16}$ JIC Ext. x 1 $\frac{1}{16}$ JIC Int.)
	7D-0978	Swivel Tee (1 $\frac{1}{16}$ JIC)
	5P-5005	Reducer (7 $\frac{1}{16}$ JIC Ext. x 1 $\frac{1}{16}$ JIC Int.)
	9S-0176	Swivel Tee (7 $\frac{1}{8}$ JIC)
	5P-5006	Reducer (7 $\frac{1}{16}$ JIC Ext. x 7 $\frac{1}{8}$ JIC Int.)
	6S-5693	Swivel Tee (3 $\frac{1}{4}$ JIC)
	5P-5007	Reducer (7 $\frac{1}{16}$ JIC Ext. x 3 $\frac{1}{4}$ JIC Int.)
	619258	Swivel Tee (9 $\frac{1}{16}$ JIC)
	5P-5008	Reducer (7 $\frac{1}{16}$ JIC Ext. x 9 $\frac{1}{16}$ JIC Int.)
	5P-4982	Swivel Tee (1 $\frac{1}{2}$ JIC)
	5P-5009	Reducer (7 $\frac{1}{16}$ JIC Ext. x 1 $\frac{1}{2}$ JIC Int.)
	520572	Swivel Tee (7 $\frac{1}{16}$ JIC)
7		Caps and Plugs:
	5P-2299	Plug (1 $\frac{1}{16}$ JIC)
	3R-6789	Cap (1 $\frac{1}{16}$ JIC)
	5P-4299	Plug (1 $\frac{1}{16}$ JIC)
	8L-9137	Cap (1 $\frac{1}{16}$ JIC)
	9S-8895	Plug (1 $\frac{1}{16}$ JIC)
	9S-8896	Cap (1 $\frac{1}{16}$ JIC)
	2P-9697	Plug (7 $\frac{1}{8}$ JIC)
	6J-7366	Cap (7 $\frac{1}{8}$ JIC)
	5P-2909	Plug (3 $\frac{1}{4}$ JIC)
	8S-4951	Cap (3 $\frac{1}{4}$ JIC)
	9S-8927	Plug (9 $\frac{1}{16}$ JIC)
	8S-4950	Cap (9 $\frac{1}{16}$ JIC)
	5P-4996	Plug (1 $\frac{1}{2}$ JIC)
	5P-0405	Cap (1 $\frac{1}{2}$ JIC)
	—	Plug (7 $\frac{1}{16}$ JIC)
	9L-8493	Cap (7 $\frac{1}{16}$ JIC)
8	4C-4463	Utility Box
9	4C-4464	Foam Block
10	1S-8937	Needle Valve
11		Pressure Gauges
	8T-0855	Gauge 4000 kPa (0 - 580 PSI)
	8T-0859	Gauge 25,000 kPa (0 - 3600 PSI)
	8T-0861	Gauge 60,000 kPa (0 - 8700 PSI)
12		Connectors and O-ring Seals:
	3K-0360	308193 Connector (7 $\frac{1}{16}$ JIC Ext. x 3 $\frac{1}{4}$ -16 Ext.)
	2P-1314	O-ring Seal
	3J-1907	Connector (7 $\frac{1}{16}$ JIC Ext. x 9 $\frac{1}{16}$ -18 Ext.)
	306984	O-ring Seal
	306984	Connector (7 $\frac{1}{16}$ JIC Ext. x 1 $\frac{1}{2}$ -20 Ext.)
	1J-9671	O-ring Seal
	3J-7352	Connector (7 $\frac{1}{16}$ JIC Ext. x 7 $\frac{1}{16}$ -20 Ext.)
	3J-7354	O-ring Seal
	7J-4026	Elbow (90°, 7 $\frac{1}{16}$ JIC Ext. x 9 $\frac{1}{16}$ -18 Ext.)
	3J-1907	O-ring Seal
	4S-6399	Connector (7 $\frac{1}{16}$ JIC Ext. x 1 $\frac{1}{4}$ NPT Ext.)
	8L-6557	Connector (7 $\frac{1}{16}$ JIC Ext. x 1 $\frac{1}{8}$ NPT Ext.)
	5P-8998	Nipple (1 $\frac{1}{4}$ NPT Ext.)
13		Quick Disconnects
	6V-3989	Non-Valved Nipple (1 $\frac{1}{4}$ NPT Int.)
	6V-3966	Valved Nipple Assembly (1 $\frac{1}{4}$ NPT Ext.)
	6V-4143	Valved Coupler, (1 $\frac{1}{2}$ NPT Int.)
	6V-4144	Valved Coupler, (1 $\frac{1}{4}$ NPT Int.)



Item	Part No.	Description
1	4C-3975	Plastic Case
2	4C-3721	Foam Block
3	4C-3719	Foam Block
4	177-7860	Hose
5	4C-3725	Utility Box
6		Swivel Tees, Caps, Plugs and O-ring Seals
	8T-4834	Swivel Tee (1 $\frac{1}{16}$ INT ORFS x 1 $\frac{1}{16}$ EXT ORFS x 9 $\frac{1}{16}$ INT SAE)
	6V-9833	Cap (1 $\frac{1}{16}$ INT ORFS)
	6V-9512	Plug (1 $\frac{1}{16}$ EXT ORFS)
	5K-9090	O-ring Seal (not serviced)
	7X-0873	Swivel Tee (1 $\frac{1}{16}$ INT ORFS x 1 $\frac{1}{16}$ EXT ORFS x 9 $\frac{1}{16}$ INT SAE)
	6V-9832	Cap (1 $\frac{1}{16}$ INT ORFS)
	6V-9511	Plug (1 $\frac{1}{16}$ EXT ORFS)
	6V-9746	O-ring Seal
	7X-0872	Swivel Tee (1 INT ORFS x 1 EXT ORFS x 9 $\frac{1}{16}$ INT SAE)
	6V-9831	Cap (1 INT ORFS)
	6V-9510	Plug (1 EXT ORFS)
	7J-9108	O-ring Seal
	7X-0871	Swivel Tee (1 $\frac{1}{16}$ INT ORFS x 1 $\frac{1}{16}$ EXT ORFS x 9 $\frac{1}{16}$ INT SAE)
	6V-9830	Cap (1 $\frac{1}{16}$ INT ORFS)
	6V-9509	Plug (1 $\frac{1}{16}$ EXT ORFS)
	6V-8398	O-ring Seal
	8T-8902	Swivel Tee (1 $\frac{1}{16}$ INT ORFS x 1 $\frac{1}{16}$ EXT ORFS x 9 $\frac{1}{16}$ INT SAE)
	6V-9829	Cap (1 $\frac{1}{16}$ INT ORFS)
	6V-9508	Plug (1 $\frac{1}{16}$ EXT ORFS)
	6V-8397	O-ring Seal
	7X-2444	Swivel Tee (9 $\frac{1}{16}$ INT ORFS x 9 $\frac{1}{16}$ EXT ORFS x 9 $\frac{1}{16}$ INT SAE)
	6V-9828	Cap (9 $\frac{1}{16}$ INT ORFS)
	6V-9507	Plug (9 $\frac{1}{16}$ EXT ORFS)
	4J-5477	O-ring Seal
7	1S-8937	Needle Valve
8	4C-4463	Utility Box
9	4C-4464	Foam Block
10		Quick Disconnects, Nipples and Adapters
	6V-4144	Coupler, QD, (1 $\frac{1}{4}$ INT NPT)
	6V-4143	Coupler, QD, (1 $\frac{1}{8}$ INT NPT)
	6V-3966	Nipple, QD, (1 $\frac{1}{4}$ EXT NPT)
	6V-3965	Nipple, QD, (9 $\frac{1}{16}$ EXT SAE)
	3J-1907	O-ring Seal
	8T-4188	Adapter Union (1 $\frac{1}{8}$ INT NPT x 1 $\frac{1}{4}$ INT NPT)
	5P-8998	Nipple (1 $\frac{1}{4}$ EXT NPT x 1 $\frac{1}{4}$ EXT NPT)
	5P-6944	Adapter (3 $\frac{1}{4}$ EXT SAE x 9 $\frac{1}{16}$ INT SAE)
	3K-0360	O-ring Seal
11		Pressure Gauges
	8T-0855	Gauge 4,000 kPa (0 - 580 PSI)
	8T-0859	Gauge 25,000 kPa (0 - 3600 PSI)
	8T-0861	Gauge 60,000 kPa (0 - 8700 PSI)

***This article has changed
since the printing of the 2009
Dealer Service Tools Catalog.***

8T-5320 Hydraulic Testing Group

SMCS Code: 5050-081, 5050-038, 7562-082, 1000-036, 4250-081, 4300-036, 4250-038, 4300-038, 5301-010, 4250-032
 Model: Most Caterpillar Models
 Warranty: Six Months

- Designed for general purpose pressure measurements
- Provides versatile and simple method for checking pressure in implement and steering hydraulic systems
- Replaces discontinued 6V-7940 Hydraulic Test Group
- Also replaces discontinued 5S-5123 Hydraulic Testing Group
- Liquid filled gauges, which are more durable and accurate
- Pressure tap assemblies equipped with 6V-3966 Nipple Assembly which allows a single gauge to be quickly connected to hydraulic system
- More flexible hose with higher working and minimum burst pressure than former hose
- Group includes all items in figure



Item	Part No.	Description	Qty.
1	6V-7145	Box Assembly (green plastic box)	
3	8T-7686	Block — Tool Holder	
4	7M-8489 3J-1907 8T-0859	Adapter Assembly Seal Gauge, 25,000 kPa, (3600 PSI)	5
6	8T-0857	Gauge, 13,800 kPa, (2000 PSI)	
7	5P-3415 3D-2824 5P-3501 3J-1907 5P-4674 3K-0360 5P-2937 3J-7354 5P-4675 1J-9671	Adapter Seal Adapter Seal Adapter Seal Adapter Seal Adapter Seal	5 6 6 6
8	8S-7169	Coupler	
9	6V-3965	Nipple Assembly	
10	2N-2543 2S-4078	Plug Seal	
11	5H-4017 5F-7054 8S-7668 4J-8996 5H-4018 5F-1678 5H-4019 4F-7391 5H-4020 4F-7952 2J-2668 7F-8267	Cover, 12.70 mm (0.50 in) line Seal Cover, 15.75 mm (0.62 in) line Seal Cover, 19.05 mm (0.75 in) line Seal Cover, 25.40 mm (1.00 in) line Seal Cover, 31.75 mm (1.25 in) line Seal Cover, 38.10 (1.50 in) line Seal	5 2 5 5 5 5 5 5

Item	Part No.	Description	Qty.
12	1A-9579 0S-1591 0T-0768 0S-1587	Bolt Bolt Bolt Bolt	4 4 4 4
13	6V-7944 6V-7945 6V-7946 6V-7947 6V-7948 6V-7949	Plate Assembly, 33.3 mm (1.312 in) diameter 12.70 mm (0.50 in) hose Plate Assembly, 41.4 mm (1.63 in) diameter 19.05 mm (0.75 in) hose Plate Assembly, 47.5 mm (1.87 in) diameter 25.4 mm (1.0 in) hose Plate Assembly, 54.1 mm (2.13 in) diameter 31.75 mm (1.25 in) hose Plate Assembly, 63.5 mm (2.50 in) diameter 38.10 (1.50 in) hose Plate Assembly, 38.1 mm (1.50 in) diameter 15.75 mm (0.62 in) hose	
14	6V-3966	Nipple Assembly	3
15	177-7860	Hose Assembly	
16	6V-4143	Coupler Assembly	2

242-7135 Test Kit

SMCS Code: 5050-081, 5050-038, 7562-082, 1000-036, 4250-081, 4300-036, 4250-038, 4300-038, 5301-010, 4250-032
 Model: All Caterpillar Oil Coolers

Essential Tool

Warranty: Six Months

- Used to test all Caterpillar oil coolers for leaks
- Prevents unnecessary oil cooler replacement
136-3602 Drive Adapter

Reference

REHS1758, Test Procedure

Part No.	Description
210-6990	Digital Pressure Gauge
4C-7056	Hose
4C-8858	Coupler
6V-7145	Case
1P-3703	Seal, 38.66 mm (1.52 in) outside diameter
1P-3704	Seal, 44.75 mm (1.76 in) outside diameter
1P-3708	Seal, 64.2 mm (2.52 in) outside diameter
8T-2885	Seal, 83.4 mm (3.28 in) outside diameter
NEEG2976	Decal



Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and AssemblyMotor Grader Controls,
Cable Control and WinchLoader Lift Arm and
Excavator ImplementImplements, Frame,
Hitch and Suspension

6V-0102 Flushing Adapter

SMCS Code: 5050-046
Model: 245 Excavator
Warranty: Six Months

- Required for flushing stick cylinder
- Has 3 interconnecting ports so that a loop of 3 hoses can be connected to the three ports on stick cylinder



Flowmeters

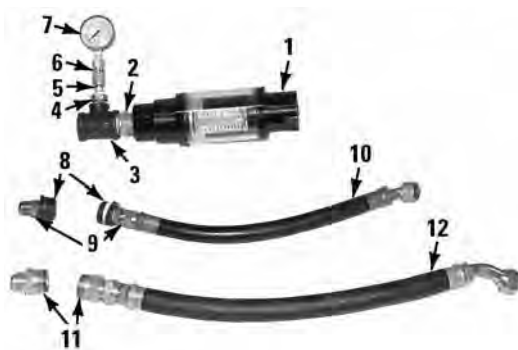
SMCS Code: 5050-082, 3150-038, 5050-038
Model: Most Caterpillar Models
Warranty: Six Months

*This article has changed
since the printing of the 2009
Dealer Service Tools Catalog.*

- Low cost flowmeters for measuring hydraulic flow in applications within their capacities
- Similar to 6V-7788 Flowmeter; all 3 flowmeters incorporate a variable orifice which measures line flow with less restriction (pressure drop) than 5P-3600 Flowmeter
- Can be installed in any position and are not affected by shock or vibration



Part No.	Description	Range	Maximum Pressure	Length	Inlet/Outlet Connections
8T-0454	Flowmeter	20 - 200 lpm (5 - 50 gpm)	20,700 kPa (3,000 PSI)	Approx. 300 mm (12 in)	1 1/4 in NPT
8T-0456	Flowmeter	50 - 550 lpm (10 - 150 gpm)	20,700 kPa (3,000 PSI)	Approx. 300 mm (12 in)	1 1/4 in NPT



Tools needed for checking transmission cooler flow
on 943, 953, 963 and 973 Track-Type Loaders (Sold Separately)

Item	Part No.	Description
1	8T-0454	Flowmeter
2	1P-5598	Pipe Nipple, 1 1/4 in NPT
3	1Y-7453	Tee
4	9B-3523	Reducing Bushing
5	6V-3966	Nipple
6	6V-4144	Coupler
7	8T-0854	Gauge, 9 - 1000 kPa (1 - 150 PSI)
8	8F-8306	Reducing Bushing, 1 1/4 in NPT to 3/4 in NPT (2)
9	—	Flared Connector, 37° (2) ¹
10	—	Hose ¹
11	6K-3459	Flared Connector, 37° (2) ²
12	—	Hose ²

¹ Use for 943 and 953

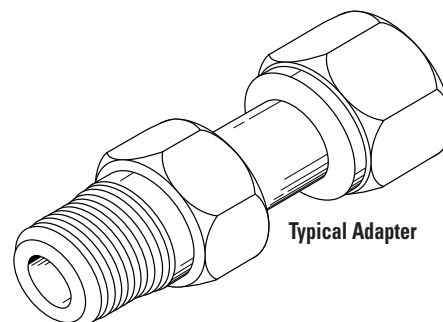
² Use for 963 and 973

Adapters

SMCS Code: 5050-082
Warranty: Six Months

- Used to adapt fluid ports for measuring flow in hydraulic and cooling systems
- Low-cost adapters are used with other field service components
- Three sizes fit most Caterpillar machines

Part No.	Male End	Female End
197-8947	1/4 NPTF	9/16-18 ORFS swivel
197-8948	1/2 NPTF	13/16-16 ORFS swivel
197-8949	3/4 NPTF	13/16-12 ORFS swivel



Typical Adapter

6V-7788 Flowmeter

SMCS Code: 5050-038, 5050-082
Model: D8L, D9L and D10 Tractors
Warranty: Six Months

Range	5 - 60 lpm (2 - 15 gpm)
Max. pressure	20,670 kPa (3,000 PSI)
Accuracy	±5% of full scale reading

- Used for measuring flow when diagnosing steering problems using a field test procedure developed to determine amount of leakage in steering clutch and brake compartments
- Direct reading device installed in power train oil line
- Mounting position, shock, and vibration have little or no effect on operation of new flowmeter



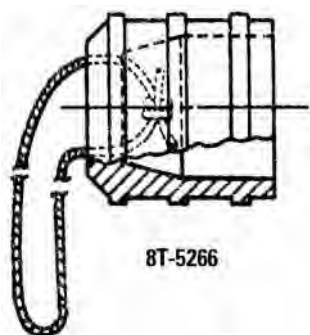
Reference

SMHS8284, Special Instruction

Cap Assemblies

SMCS Code: 0784
Model: Most Caterpillar Models
Warranty: Six Months

- For 1¼-11½ NPTF threaded quick disconnect nipples and couplers
- Designed to prevent contamination when fittings not in use



This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Cap Assembly	Nipple
8T-5266	2P-8334
8T-5266	2P-8336

1U-9161 Pressure Limiting Valve

SMCS Code: 0784
Model: Most Caterpillar Models
Warranty: Six Months

- Protects gauges with maximum working pressures ranging from 30 to 5000 PSI
- Prevents calibration failure, interior damage, and blow out caused by excessive pressure
- Works in 3 pressure ranges: 30 to 120 PSI, 100 to 1100 PSI, and 1000 to 5000 PSI
- Supplied with 3 springs used for adjustment throughout 3 pressure ranges
- Whenever pressure pulses or overpressure occurs, valve automatically shuts off pressure instrument at desired setting
- Needle built into valve for adjusting amount of dampening and can also be used as manual shut off
- Easy to install; uses common ¼-18 FNPT thread
- Quickly pays for itself in savings from cash repair and replacement charges
- Can also be used to set up 2-gauge system similar to 6V-7830 Tetragauge Group
- Adjustable from 30 to 5000 PSI (210 to 34,500 kPa)
- ¼-18 FNPT thread
- Maximum working pressure: 5000 PSI (34,500 kPa)



Item	Part No.	Description
1	1U-9161	Valve-Pressure Limiting [Spring, silver, 30 - 120 PSI (210 - 830 kPa) installer at shipment]
2		Spring, black, 100 - 1,100 PSI (690 - 7,600 kPa)
3		Spring, gold, 1,000 - 5,000 PSI (6,900 - 34,500 kPa)

1U-5796 Pressure Differential Gauge Group

SMCS Code: 3000-038, 4100-038, 4112-082, 4351-036, 5050-038, 5070-082, 5454-082
Model: See Below
Warranty: Six Months

- Required to verify and set margin pressure on load-sensing hydraulic systems
- Typical examples for use are 416 and 426 Backhoe Loader hydraulic systems, D8N Track-Type Tractor differential steering, and all current motor grader hydraulic systems
- Can also be used in other applications requiring measurement of differential pressure (deltaP)
- Eliminates need for using 2 gauges and then subtracting to find difference between gauges to obtain margin pressure
- Measures differential pressure continuously, regardless of fluctuations in system pressure

1U-5796 Pressure Differential Gauge Group

Part No.	Description
8T-0859	Pressure Gauge
6V-4144	Coupler Assembly
1U-5793	Pressure Gauge
6V-3965	Nipple Assembly
8C-8431	Tee
6V-0484	O-ring Adapter
3J-1907	O-ring Seal
177-7861	Hose
6V-4143	Coupler Assembly
8T-0861	Pressure Gauge
6V-3072	Case
6V-6105	Block

Reference

SEHS8979, Special Instruction

Maximum line pressure	52,400 kPa (7,500 PSI)
Maximum measurable pressure differential	3,500 kPa (500 PSI)
The differential gauge has a magnetic movement. Over pressure and pressure spikes will not damage the unit.	

Drive Adapters

SMCS Code: 0784
Model: 205, 206, 211, 212, 213, 214, 224 and Series B, Wheel-Type Excavators
Warranty: Six Months

- Used to connect drive shaft on hydraulic pumps to drive shaft on test benches
- Adapters bolt directly to 1U-9832 Drive Shaft (SAE 27) found on test benches
- Also used with 1U-9359 Adapter and coupled with standard drive shaft (SAE 55)
- Adapters are internally splined hubs



Item	Part No.	Corresponding Splines	Model
1	9U-5277	45 x 2 x 21 x 9G DIN5480	211B, 212B, 213B, 214B, 224B
2	9U-5275	40 x 2 x 18 x 9G DIN5480	205B
3	9U-5230	B40 x 36 DIN5482	213, 214, 224
4	9U-5276	B30 x 27 DIN5482	205, 206, 211, 212

4C-4385 Splined Adapter

SMCS Code: 0784
Model: D4H
Warranty: Six Months

*This article has changed
since the printing of the 2009
Dealer Service Tools Catalog.*

- Internally-splined drive hub used when bench testing D4H hydraulic pumps
- Fits any pump shaft with spline size of 19-tooth, 24/48 pitch
- Bolts directly to 1U-9832 Drive Shaft (SAE size 27) or when used with 1U-9359 Adapter can be coupled to size SAE 55 drive shaft supplied standard on large hydraulic test center

Reference

SEHS6022, "9T-0290 Pump, D4H Implement" Test Procedure;
adapter and other required tooling to bench test D4H implement pump

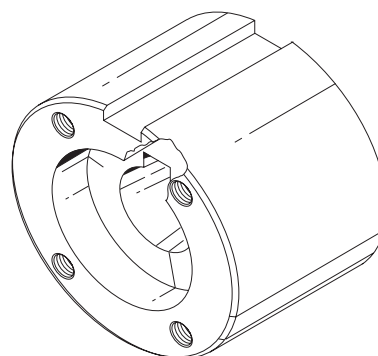


136-3602 Drive Adapter

SMCS Code: 0784
Model: 14H and 16H Motor Graders
Warranty: Six Months

- Used to connect test bench drive shaft to tapered end of hydraulic pump
- Works on any pump with a SAE J501 44.45 mm (1 $\frac{3}{4}$ in) diameter tapered pump shaft

Adapter taper	44.45 mm (1 $\frac{3}{4}$ in), SAE J501
Outside diameter	97.5 mm (3.84 in)
External keyway width	16.2 mm (0.637 in)
Material	Steel



4C-4088 Splined Adapter

SMCS Code: 0784
Model: Backhoe Loaders
Warranty: Six Months

*This article has changed
since the printing of the 2009
Dealer Service Tools Catalog.*

- Internally-splined drive hub used when bench testing backhoe loader hydraulic pumps
- Fits any pump shaft with spline size of 15-tooth, 1 $\frac{16}{32}$ pitch
- Bolts directly to 1U-9832 Drive Shaft (SAE size 27) or when used with 1U-9359 Adapter can be coupled to standard drive shaft (SAE size 55) on large hydraulic test center

References

NEHT6022, Test Procedure; 9T-6857 Pump, 416/428 Backhoe Loader

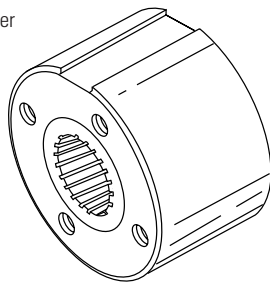
NEHT6027, Test Procedure; 9T-4833 Pump, 426, 436, 438 Backhoe Loader
(adapter and other required tooling to bench test Backhoe Loader pump)



133-2329 Drive Adapter

SMCS Code: 0784
Model: D3C Track Type Tractor
and 933C Track Type Loader
Warranty: Six Months

- Used to connect test bench drive shaft to spline shaft of pump

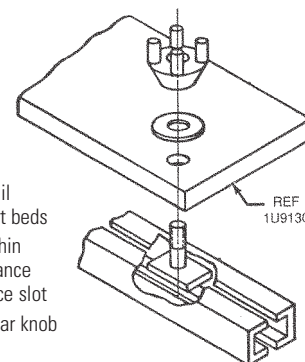


Number of spline teeth	21
Spline pitch	1 $\frac{16}{32}$
Pressure angle	30 degrees
Pitch diameter	20.638 mm (0.8255 in)
Keyway width	16.2 mm (0.64 in)

4C-4103 Bolt Mounting Group

SMCS Code: 0784
Model: Most Caterpillar Models
Warranty: Six Months

- Provides way to secure 1U-9130 Pump Stand or 1U-9588 Transmission Mounting Group to hydraulic test bench bed
- Bolt weldment slides inside rail mounting grooves on most test beds
- Accepts any mounting rail within 63.5 mm (2.50 in) inside clearance and 20.6 mm (0.81 in) clearance slot
- Comes complete with speed bar knob and washer
- Improves speed and ease of mounting and moving components on hydraulic test bench bed



Hydraulic Test Fittings and Adapters for “MS” and “E” Family Excavators

SMCS Code: 0784

Model: “MS” and “E” Family Excavators

Warranty: Six Months

- Used to connect Caterpillar hydraulic service tools to hydraulic ports on excavators
- Hydraulic fittings and ports on these excavators are British standard connections; Caterpillar service tools use SAE standard connections
- Fittings and adapters available for both flow and pressure measurements
- All fittings rated at 6000 PSI working pressure
- Eliminate time spent searching for, and then “stacking” fittings to convert port



Item	Part No.	Description	Application
Flow Meter Adapters			
1	7X-2430	Adapter Flange — 1 in SAE standard flange x 5/16 in-12 SAE O-ring male thread	Used to install flow meter in-line between pump and control valve on models 180 thru 450
1	7M-8485	Seal — 2 required	
1	7X-2608	Adapter — 1 1/4 in SAE standard flange x 1 5/16 in-12 SAE O-ring male thread	Used to install flow meter in-line between pump and control valve on models 580 thru 1600
1	7M-8485	Seal — 1 required	
1	2S-4078	Seal — 1 required	
2	7X-2612	Adapter — 3/4 in-14 BSPP female x 1 5/16 in-12 SAE O-ring male thread	Used to install flow meter in-line between pump and control valve on models 70 thru 140
2	7M-8485	Seal — 1 required	
3	7X-2432	Adapter — 3/4 in-14 BSPP male x 1 5/16 in-12 SAE O-ring male thread	Used to install flow meter in-line between pump and control valve on models 70 thru 140
3	7M-8485	Seal — 1 required	
4	7X-2470	Adapter — 1 5/16 in-12 SAE O-ring male x 1 5/16 in-12 SAE O-ring female thread	Used to adapt flow meter return back into the oil return line on models 300 and up
4	2S-4078	Seal — 1 required	
5	8C-9029	Union — 1 5/16 in x 1 5/16 in SAE O-ring male thread union	Used to adapt flow meter return back into the oil return line
5	7M-8485	Seal — 2 required	on models 300 and up
Pressure Test Port Adapters			
6	7X-2613	Adapter — 1/8 in-28 BSPP male x 9/16 in-18 SAE O-ring port	Used to convert BSPP threads on the model 300 travel drive motor control valve
7	7X-2614	Adapter — 1/4 in-19 BSPP male x 9/16 in-18 SAE O-ring port	Used to convert BSPP threads on the model 180 thru 240 travel drive motor control valve
8	8T-7910	Adapter — 1/4 in-19 BSPP male x 9/16 in-18 SAE port	Used to convert BSPP threads in pressure taps to SAE threads on control valve pilot piston ends
8	6V-0405	Seal — 1 required	
9	7X-2615	Adapter — 3/8 in-19 BSPT male x 9/16 in-18 SAE O-ring port	Used to convert BSPT threads on models 580 thru 1600
10	7X-2431	Adapter — 1/2 in-14 BSPP male x 9/16 in-18 SAE O-ring port	Used to convert BSPP threads in pressure taps to SAE threads
10	6V-0407	Seal — 1 required	
In-Line Tee Fittings			
11	7X-2434	Tee — 1/4 in-19 BSPP swivel x 1/4 in-19 BSPP male x 9/16 in-18 SAE female branch	Used to tap into various lines on the machine where pressure taps do not exist
11	7X-2435	Tee — 3/8 in-19 BSPP swivel x 3/8 in-19 BSPP male x 9/16 in-18 SAE female branch	
11	7X-2433	Tee — 1/2 in-14 BSPP swivel x 1/2 in-14 BSPP male x 9/16 in-18 SAE female branch	
Elbows			
12	7X-2609	Elbows — 1/4 in-19 BSPP male x 1/4 in-19 BSPP swivel	Used with pressure port adapters in close quarters on all machines
12	7X-2610	Elbows — 3/8 in-19 BSPP male x 3/8 in-19 BSPP swivel	
12	7X-2611	Elbows — 1/2 in-14 BSPP male x 1/2 in-14 BSPP swivel	
Plugs			
	8T-7910	Adapter (1/4 in BSPP)	Used to plug hose ends when running diagnostic tests
	9S-4685	Plug	
	3J-1907	Seal	
	8T-7911	Adapter (3/8 in BSPP)	
	9S-4685	Plug	
	3J-1907	Seal	

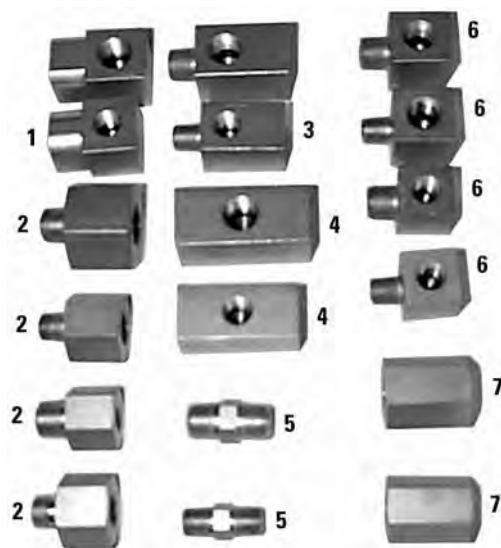
BSPT = British Standard Pipe Tapered Threads; BSPP = British Standard Pipe Parallel Threads

Fittings for 68 900 kPa (10,000 PSI) Hydraulic System

SMCS Code: 5050-039

Warranty: Six Months

- Fittings and adapters for use with 68 900 kPa (10,000 PSI) systems



Item	Part No.	Description	Type	Thread A	Thread B	Thread C
1	136-2069	Adapter	90° Elbow	1/4-18 NPT Female	1/4-18 NPT Female	
	135-2537	Adapter	90° Elbow	3/8-18 NPT Female	3/8-18 NPT Female	
2	136-7203	Adapter	Straight	3/16-18 UNF #6 Male	3/8-18 NPT Female	
	136-2061	Adapter	Straight	1/4-18 NPT Male	3/8-18 NPT Female	
	136-2063	Adapter	Straight	3/8-18 NPT Male	1/2-14 NPT Female	
	135-2532	Adapter	Straight	3/4-18 NPT Male	1/4-18 NPT Female	
3	136-2062	Adapter	Tee	3/8-18 NPT Male	3/8-18 NPT Female	3/8-18NPT Female
	135-2534	Adapter	Tee	1/4-18 NPT Male	1/4-18 NPT Female	1/4-18 NPT Female
4	136-2067	Adapter	Tee	1/4-18 NPT Female	1/4-18 NPT Female	1/4-18 NPT Female
	136-2068	Adapter	Tee	3/8-18 NPT Female	3/8-18 NPT Female	3/8-18 NPT Female
5	135-2536	Adapter	Straight	3/8-18 NPT Male	3/8-18 NPT Male	
6	136-2059	Adapter	90° Elbow	3/8-18 NPT Male	3/8-18 NPT Female	
	136-2060	Adapter	90° Elbow	1/4-18 NPT Male	3/8-18 NPT Female	
	135-2533	Adapter	90° Elbow	1/4-18 NPT Male	1/4-18 NPT Female	
	135-2535	Adapter	90° Elbow	3/8-18 NPT Male	1/4-18 NPT Female	
7	136-2065	Adapter	Straight	1/4-18 NPT Female	1/4-18 NPT Female	
	136-2066	Adapter	Straight	3/8-18 NPT Female	3/8-18 NPT Female	

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

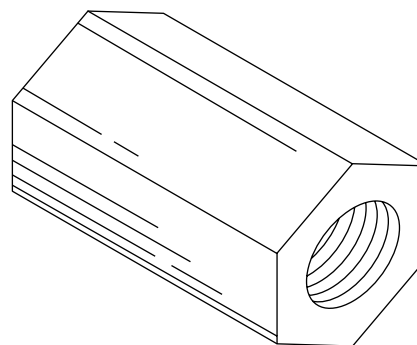
171-1879 Adapter Fitting

SMCS Code: 0738

Warranty: Six Months

- Used for high pressure testing
- Used with 68,900 kPa (10,000 PSI) high pressure hoses
- Threaded at each end to adapt 1 thread size to another

Maximum working pressure	68,900 kPa (10,000 PSI)
Burst ratio	4:1
Thread size	1/4-18 NPT
Thread size	#6 port, 3/16-18



Die Groups

SMCS Code: 0684

Model: **Discontinued** 139-5439 Combination Hose Machine and **discontinued** 145-5161 Floor Model Hose Machine

Warranty: Six Months

- Used to crimp S4G and MCSH/MCSX Anchor brand couplings onto XT-3 ES and XT-5 hose
- Used with **discontinued** 139-5439 Combination Hose Machine and **discontinued** 145-5161 Floor Model Hose Machine
 - 220-8686 die works on both **discontinued** 139-5439 and **discontinued** 145-5161
 - 220-8687 and 220-8688 dies work only on **discontinued** 145-5161
- Use NEHS8056 Chart for skive length, crimp diameter, and crimp length
- Dies are made with a smooth bore (non-step) — this requires crimp length to be marked on coupling and lined up with top of die before crimping
- Hose machine must be controlled by a Crimputer (software version 2.0 or higher) to use these dies

Reference

NEHS8056, Anchor Brand Coupling Crimp Chart

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

220-8686 Die Group		
XT-3 ES	1¼ (-20)	Anchor S4G coupling
220-8687 Die Group		
XT-3 ES	1½ (-24)	Anchor S4G coupling
XT-5	1¼ (-20)	Anchor MCSH or MCSX couplings
220-8688 Die Group		
XT-3 ES	2 (-32)	Anchor S4G coupling

Copper Seals for JIC Fittings (Joint Industry Conference)

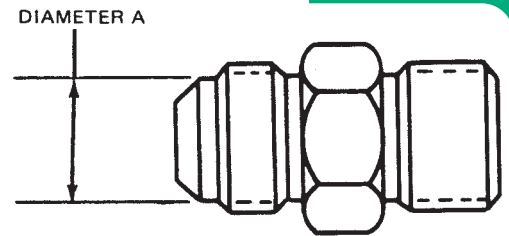
SMCS Code: 0684

Model: JIC Fittings

Warranty: Six Months

- Used to repair leaking joints between JIC fittings
- Formerly, if JIC connection leaked and slight additional tightening would not stop leak, leaking components had to be replaced; cone shaped soft copper seals can be fitted between sealing surfaces of connection; when connection tightened, soft copper seal deforms and fills scratches or nicks that caused a leak
- To determine size of seal needed, find diameter A as shown in illustration; then use chart to find correct seal part number for diameter A
- After copper seal installed, tighten JIC connection to torque shown in chart

Diameter A	Seal Part No.	Torque
8.6 mm (0.34 in)	6V-7333	30 - 34 N-m (22 - 25 ft-lb)
11.4 mm (0.45 in)	6V-7332	51 - 56 N-m (38 - 41 ft-lb)
14.2 mm (0.56 in)	6V-7331	73 - 79 N-m (54 - 58 ft-lb)
23.9 mm (0.94 in)	6V-7330	102 - 113 N-m (75 - 84 ft-lb)
30.2 mm (1.19 in)	6V-7329	136 - 158 N-m (101 - 117 ft-lb)
38.1 mm (1.5 in)	6V-7328	172 - 190 N-m (127 - 141 ft-lb)
44.4 mm (1.75 in)	6V-7327	215 - 237 N-m (159 - 175 ft-lb)



4C-8768 Fitting

SMCS Code: 6500-036

Model: E300, EL300, E300B, and EL300B Excavator

Warranty: Six Months

- Used to adapt high pressure hose from pump to 1U-8761 Flowmeter
- 90° elbow swivels allowing flowmeter to hook up more conveniently



Working pressure	41,000 kPa (6,000 PSI)
Male end	1½-12 SAE O-ring fitting
Female end	1¾-12 ORFS fitting

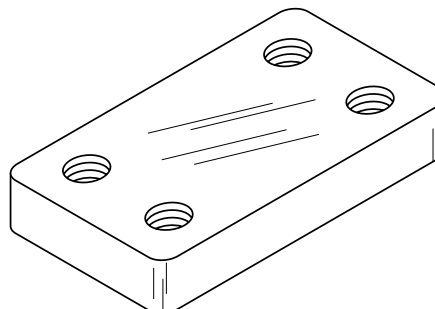
7I-7133 Cover Plate

SMCS Code: 6500-036

Model: Miscellaneous Excavators

Warranty: Six Months

- Used during main hydraulic pump flow test



Brake and
Steering Systems

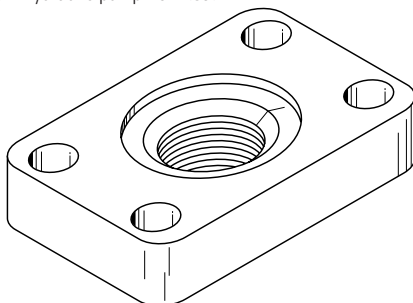
Hydraulic System Tools

Hydraulic Component
Disassembly and AssemblyMotor Grader Controls,
Cable Control and WinchLoader Lift Arm and
Excavator ImplementImplements, Frame,
Hitch and Suspension

7I-7151 Flange

SMCS Code: 6500-036
Model: Miscellaneous Excavators
Warranty: Six Months

- Used during main hydraulic pump flow test



Hydraulic Test Bench Adapters

SMCS Code: 5050-036
Model: Most Caterpillar Models
Warranty: Six Months

- Hydraulic test benches have been developed for bench testing hydraulic components such as transmissions, pumps, valves and hydraulic cylinder
- A large number of special adapters are needed to couple the various components to hydraulic test bench for testing; adapters available from bench manufacturers
- SEHS7972, Bench Testing Hydraulic Components, includes list of adapters and their application

Reference

SEHS7972, Bench Testing Hydraulic Components, list of adapters and their application

174-4356 Adapter, XT-6/STOR

174-4360 Elbow, 90 Degree

9U-6807 Coupling, 45 Degree

SMCS Code: 6500-036
Model: 365B Hydraulic Excavator

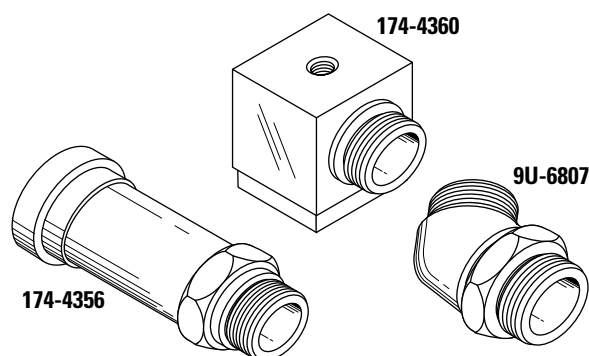
Essential Tool

Warranty: Six Months

- Used to adapt high pressure hose from pump fitting to flowmeter fitting of hydraulic portable tester
- Used with 4C-9910 Portable Hydraulic Tester
- Working pressure: 42,000 kPa (6,000 PSI)

Reference

REN1967, Service Manual; System Operation — Test and Adjust



1U-7641 Elbow, 90° ORFS to STOR BOSS

1U-7642 Coupling Assembly, ORFS to STOR BOSS

SMCS Code: 5070-036
Model: 307 Excavator

Essential Tool

Warranty: Six Months

- Used to test pump flow rate without removing pump from machine

1U-7641

- Connects high pressure oil line from main hydraulic pump to flowmeter
- 90° Elbow Swivel makes hookup to flowmeter faster and easier

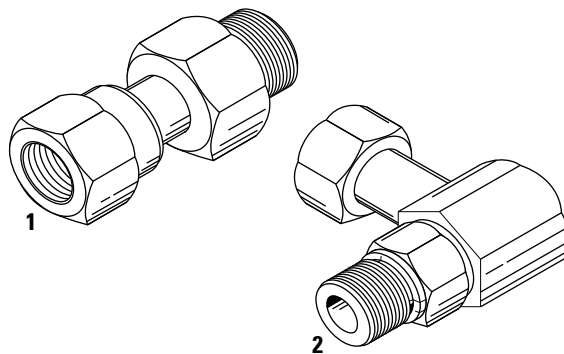
1U-7642

- Connects return line from flowmeter into hydraulic circuit
- Prevents hydraulic oil from over heating during pump testing by directing oil through the oil cooler

References

SEN9005, Testing and Adjusting 307 Excavator Hydraulic Systems

SEN9205, Testing and Adjusting 307 Excavator Hydraulic Systems



Item	Part No.	Description	Working Pressure	Male Thread (STOR)	Female Thread (ORFS)	O-ring Seal for STOR BOSS Thread
1	1U-7642	Coupling Assembly, ORFS to STOR BOSS	41,000 kPa (6,000 PSI)	Dash size 16, 1 $\frac{1}{16}$ -12 thd	Dash size 8, 1 $\frac{1}{16}$ -16 thd	7M-8485
2	1U-7641	Elbow, 90° ORFS to STOR BOSS	41,000 kPa (6,000 PSI)	Dash size 16, 1 $\frac{1}{16}$ -12 thd	Dash size 10, 1-14 thd	7M-8485

Swivel Tees

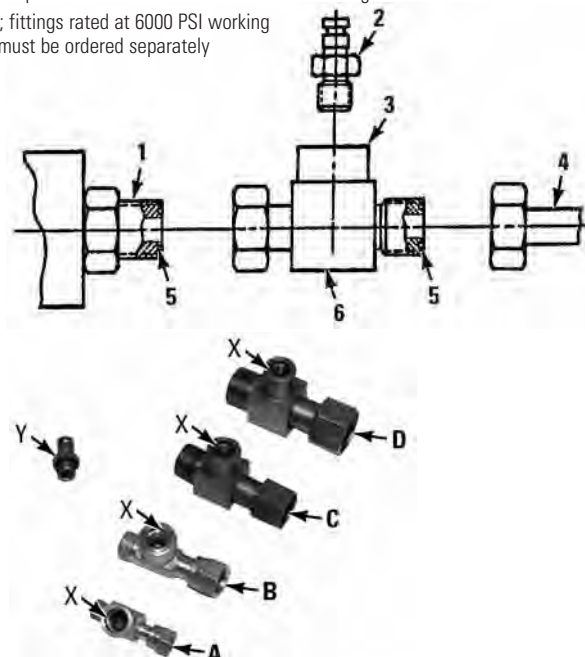
SMCS Code: 0784
Model: Most Caterpillar Models
Warranty: Six Months

- Used for in-line pressure testing of hydraulic systems where tubing and hoses have ORFS connections
- Quick and easy way to provide diagnostic test port on ORFS tubes and hoses where none were previously available
- Tee has #6 SAE O-ring Port (X) to accept 6V-3965 Valved Quick Disconnect Nipple and 3J-1907 O-ring Seal (Y), providing necessary fittings and location to connect pressure gauge; tee can be left in place for future use or removed after testing
- Supplement tees already available for 3/8 inch and 1 inch ORFS tube sizes; fittings rated at 6000 PSI working pressure and fit tube sizes as shown in chart; O-ring seals for ORFS tees must be ordered separately

Item	Part No.	Description
1		Existing ORFS Connection
2	6V-3965	Valved Quick — Disconnect Nipple and 3J-1907 O-ring Seal (Y)
3		#6 SAE O-ring Port (X)
4		Existing ORFS Tube or Hose
5		Required O-ring Seal
6	7X-0871 7X-0872 7X-0873 7X-2444	Swivel Tee Swivel Tee Swivel Tee Swivel Tee

Item	Tee Part No.	O-ring Seal Part No. (Not shown)	Tube Outside Diameter
A	7X-2444 8T-8902	4J-5477 6V-8397	6.35 mm (1/4 in) 9.52 mm (3/8 in)
B	7X-0871	6V-8398	12.70 mm (1/2 in)
C	7X-0872	7J-9108	15.88 mm (5/8 in)
D	7X-0873 8T-4834	6V-9746 5K-9090 ¹	19.05 mm (3/4 in) 25.40 mm (1 in)

¹ Not serviced



This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

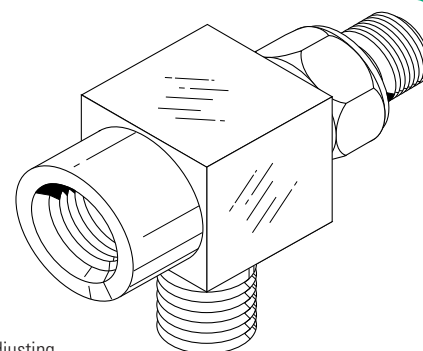
Implements, Frame, Hitch and Suspension

128-5890 Tee Fitting

SMCS Code: 3055-081
Model: Challenger 35, 45, and 55 Agricultural Tractors
Warranty: Six Months

- Used to allow mechanic to more easily test lube oil pressure (oil supply for PTO clutch pack and bearings)
- Used with quick disconnect and pressure gauge
- Installs in place of elbow on center housing (used for testing only; do not permanently install)
- Requires 6V-3965 Nipple Assembly, two 3J-7354 O-ring Seals, and one 3J-1907 O-ring Seal

Wrench flat	22.26 mm (7/8 in)
Center housing connection	7/16-20 male O-ring
Nipple connection	9/16-18 female O-ring
Supply line connection	1 1/16-16 male ORFS



Reference

SEN8304, Service Manual, Challenger 35, 45, and 55 Agricultural Tractor Transmission Systems Operation Testing and Adjusting

1U-7044 Lube Block Adapter

1U-8856 U-Joint Adapter

FT2257 Support Legs

SMCS Code: 0784
Model: D6H (discontinued Arrangement 7G-4636), D7H (Arrangement 8P-8973), D8N (Arrangement 9W-9613)
Warranty: 1U-7044 Lube Block Adapter and 1U-8856 U-Joint Adapter: Six Months
FT2257 Support Legs: None

- Required for bench testing D6H (discontinued Arrangement 7G-4636), D7H (Arrangement 8P-8973) and D8N (Arrangement 9W-9613) transmissions
- Provide method for connecting transmissions to test bench oil supply, flowmeters and drive shaft, and to support transmission during bench test
- Previously available tooling also used with these adapters and support legs during bench test

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.



Reference

NEHT6010

4C-4042 Cover Plate

4C-4044 Front Support Left

SMCS Code: 0784

Model: 936 and the 936E (**discontinued** Arrangement 6Y-1741)

Warranty: Six Months

- Required for bench testing 936 and the 936E (**discontinued** Arrangement 6Y-1741) transmission
- Provide way to connect transmission to test bench and to support transmission during bench test
- Previously available tooling also used with these adapters and support legs during bench test

Reference

NEHT6025

***This article has changed
since the printing of the 2009
Dealer Service Tools Catalog.***



4C-3999 Front Supports

4C-3998 Cover

SMCS Code: 0784

Model: 916 (**discontinued** Arrangement 7G-3030); 926 and 926E (**discontinued** Arrangement 8P-9853);IT18 and IT18B (**discontinued** Arrangement 9W-3906); IT28 and IT28B (**discontinued** Arrangement 8P-9853) transmissions

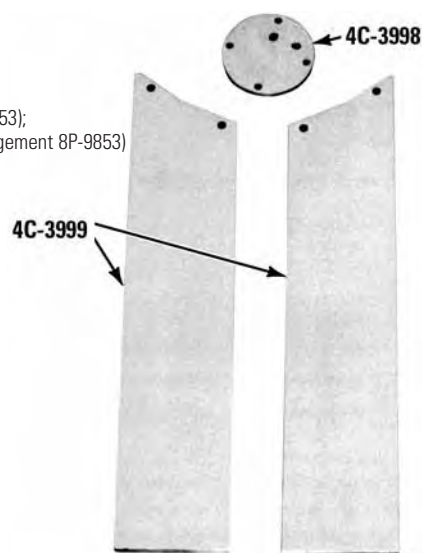
Warranty: Six Months

- Required for bench testing 916 (**discontinued** Arrangement 7G-3030); 926 and 926E (**discontinued** Arrangement 8P-9853); IT18 and IT18B (**discontinued** Arrangement 9W-3906); and IT28 and IT28B (**discontinued** Arrangement 8P-9853) transmissions
- Provide way to connect transmission to hydraulic test center and to support transmission during bench testing
- Previously available tooling used with supports and cover during bench test

Reference

NEHT6023, Special Instruction

***This article has changed
since the printing of the 2009
Dealer Service Tools Catalog.***



1U-5216 Manifold for Backhoe Loader Line Relief Valves

SMCS Code: 4322-025, 5117-0360

Model: 12G, 120G, 130G, 14G, 140G, 16G, 41G, 428, 436

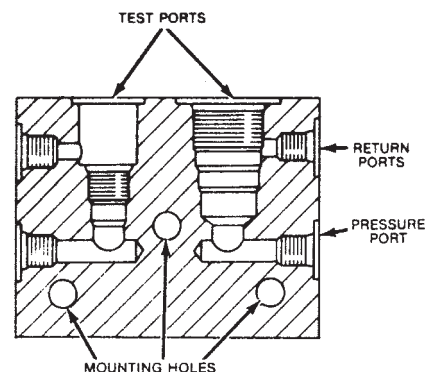
Warranty: Six Months

- Used to test and adjust line relief valves on 416, 426 and 428 Backhoe Loaders prior to installation
- 68,900 kPa (10,000 PSI) capacity hydraulic pump and pressure gauge (not included) also required for bench testing of valves with this manifold
- 2 different-sized SAE ports, modified No. 8 and standard No. 14, provided on manifold for testing both sizes of backhoe loader line relief valves; these 2 independent test ports each have two SAE No. 6 ports for hydraulic pressure and return connections
- Quick disconnect O-ring SAE port 6V-3965 Nipples and 3J-1907 O-rings can be ordered for installation on manifold for easy coupling to hydraulic pump
- Three 11 mm ($\frac{7}{16}$ in) holes in manifold for mounting convenience

References

SEN3195-01, Hydraulic System Manual for 416 and 426 Backhoe Loaders

SEN3472, Hydraulic System Manual for 428 Backhoe Loader



280-7987 Bore Gauge

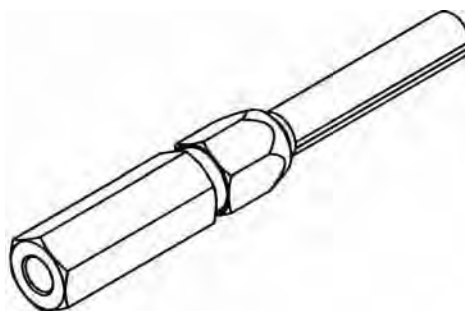
SMCS Code: 5051

Model: 416D, 420D, 424D, 428D, 430D, 432D, and 442D Backhoe Loaders

Essential Tool

Warranty: Six Months

- Used to measure bores for valve spools
- Provides a quick and easy method to determine if valve requires reconditioning



Anti-Drift Valve Disassembly and Assembly Tools

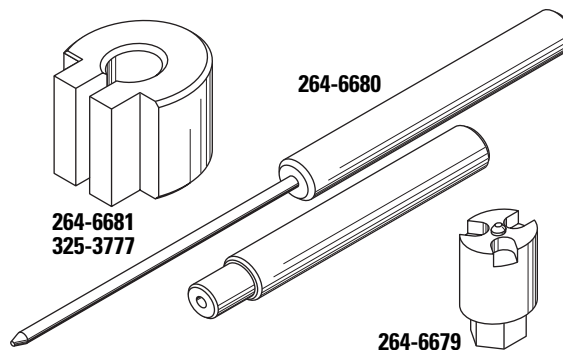
SMCS Code: 5143, 5461, 5464, 5122

Model: 420E (KMW, HLS), 430E (DDT, EAT) Backhoe Loaders,
312DL (DXH) Excavator

Essential Tool

Warranty: Six Months

- Used to disassemble and assemble anti-drift valves
- Spanner wrench used to remove plug holding spring above anti-drift valves
- Pin guide used to install pin and opens anti-drift valve
- 264-6681 Spool Clamp used to hold spool for disassembly and assembly on BHL's only
- 325-3777 Spool Clamp used to hold spool for disassembly and assembly on DL Excavator only



Part No.	Description
264-6679	Wrench
264-6680	Pin Guide
264-6681	Clamp

FT3101 Valve Adjuster

SMCS Code: 5136-025, 7258-509

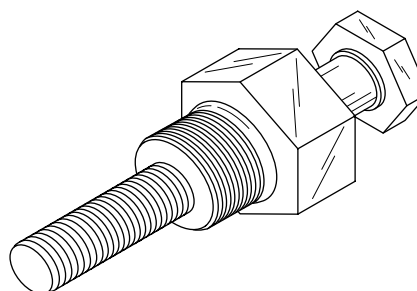
Model: 725 (AFX1179-UP & B1L1-410) and 730 (AGF1092-UP & B1M1-334) Articulated Truck

Essential Tool

Warranty: None

NEW TOOL

- Used to manually lower dump body when engine is off or stalled
- Installs into port on 241-4680 Hoist Control Valve
- Allows hydraulic spool to be shifted into lowering position
- O-ring on tooling body seals against hoist control valve to prevent hydraulic oil leakage
- Made from 190-7979 Bolt and 148-8407 STOR Plug Assembly



References

SEBU7814, 725, Operation and Maintenance Manual, 730 Articulated Trucks

SEBU7815, 735, Operation and Maintenance Manual, 740 Articulated Trucks

306-7627 File

306-7628 Handle

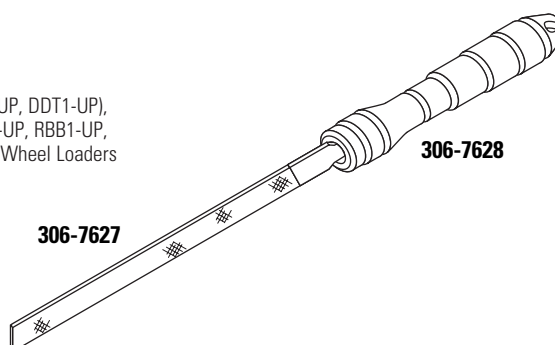
SMCS Code: 7560

Model: 416E (SHA1-UP, CBD1-UP), 420E (HLS1-UP, KMW1-UP), 430E (EAT1-UP, DDT1-UP),
446D (DBL1-UP) Backhoe Loaders; 924G (RTA1-UP, WGX1-UP, DDA1-UP, RBB1-UP,
WMB1-UP), 928G (DJD1-UP, WLG1-UP), 930G (TWR1-UP, TFW1-UP) Wheel Loaders

Warranty: Manufacturer's

NEW TOOL

- Used to check hardness of chrome plating on cylinder rods



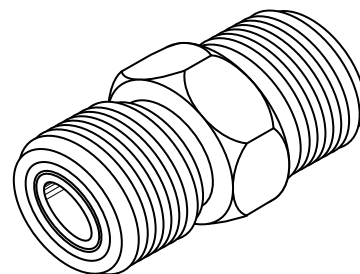
FT1990 Orificed Union

SMCS Code: 5050-038

Model: 416

Warranty: None

- Required to test and adjust hydraulic margin pressure on 416 Backhoe Loaders only
- Loader tilt cylinder hoses are disconnected from cylinder and reconnected at both ends of FT1990 for test procedure
- Places 1378 ±138 kPa (200 ±20 PSI) load on hydraulic system that should produce pump discharge pressure 1378 ±138 kPa (200 ±20 PSI) higher than signal line pressure
- Flow spool in compensator valve can be adjusted to obtain correct margin pressure differential (Refer to 416 Backhoe Loader Hydraulic System Testing and Adjusting Service Manual, SENR3195-01, for margin pressure test procedure.)
- Consists of O-ring face seal (ORFS) type 6V-8731 Union (1³/₁₆ inch—16 external thread at both ends), two 6V-8398 O-ring Seals and a 35.3 ±0.5 mm (1.39 in), long 9.4 mm (3/₈ in) diameter bar stock (SAE 1020 steel)
- Round bar stock is inserted into 6V-8731 with 9S-3263 Thread Lock or equivalent; proper-sized orifice created by drilling 4.7 mm (3/₁₆ in) diameter hole through round bar stock



Reference

SENR3195-01, Service Manual, 416 Backhoe Loader Hydraulic System Testing and Adjusting, margin pressure test procedure

Blocking Plates

SMCS Code: 4306-081, 030

Model: Challenger 65C, 70C, 75C and 85C

Warranty: Six Months

- Used to block steering pump oil flow at the differential steering motor in order to measure steering circuit maximum pressure
- Provides on-machine measurement of pressure — much faster and easier
- Can be used on either the standard steering circuit, or on the attachment, high torque steering circuit

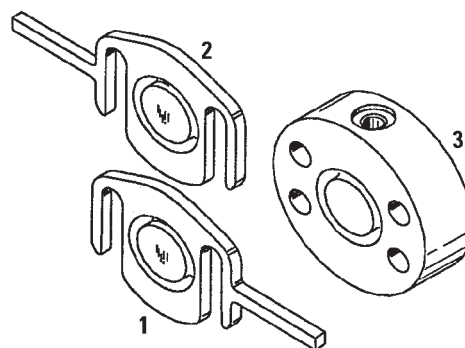
9U-7831 (right hand) and 9U-7832 (left hand)

- Installed at the steering circuit hose connections on the differential steering motor; installed at the ends of the hoses adjacent to the motor without requiring complete removal of the hoses
- Can be slipped into position between the face of the hose coupling and the mounting face on the motor by loosening the four hose flange bolts; the bolts specified for this connection are long enough to permit insertion of the plates without the need to install longer bolts
- If this connection has been previously “disturbed,” check individual bolt length to be sure that a short bolt has not been substituted in this location; the bolts should be 57.15 mm (2.25 in) in length

NOTE: Steering circuit pressure is measured at the pressure tap locations on the discharge ports of the steering pump.

9U-7834

- Blocking plate containing a pressure tap location to be used for measurement of steering circuit pressure at the steering motor location
- Installed at the steering motor end of the steering pump discharge lines
- Longer bolts (four 7X-0316 Bolts) must be substituted in the hose flange connection in order to use the 9U-7834 Plate
- The pressure tap location is a -6 STOR threaded hole (9/₁₆-18)



Reference

SENR5262, Service Manual Module

Item	Part No.	Description	Thickness	Width	Diameter	Overall Length	Used with
1	9U-7831	Blocking Plate (right-hand)	8.0 mm (0.31 in)	70.0 mm (2.75 in)	—	119.0 mm (4.69 in)	—
2	9U-7832	Blocking Plate (left-hand)	8.0 mm (0.31 in)	70.0 mm (2.75 in)	—	119.0 mm (4.69 in)	—
3	9U-7834	Blocking Plate	34.0 mm (1.33 in)	—	88.9 mm (3.50 in)	—	7X-0316 Bolt, 6V-3965 Nipple, and 3J-1907 Seal

Adapters and Support Legs

SMCS Code: 0784

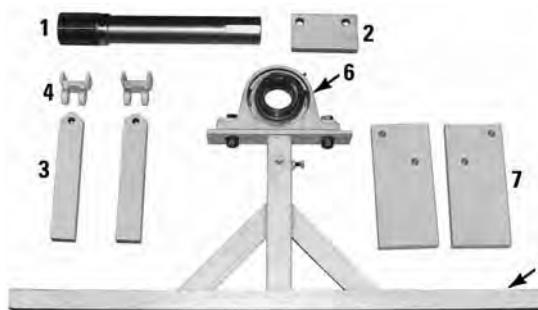
Model: D11N (discontinued) Arrangement 9G-7061)

Warranty: Six Months

- Required for bench testing D11N (discontinued) Arrangement 9G-7061) transmission
- Provide way to connect transmission to test bench oil supply, flowmeters, and drive shaft, and also support transmission during bench test
- Previously available tooling used along with these adapters and support legs during bench test

Item	Part No.	Description
1	4C-3490	Input Shaft
2	FT2286	Block Plate
3	FT2278	Rear Support
4	FT2288	Rear Support
5	FT2285	Shaft Support
6	8V-4099	Bearing Pillow Block (bearing not included)
7	FT2287	Front Support

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Service Tools for Challenger 65 Tractor

SMCS Code: 0784

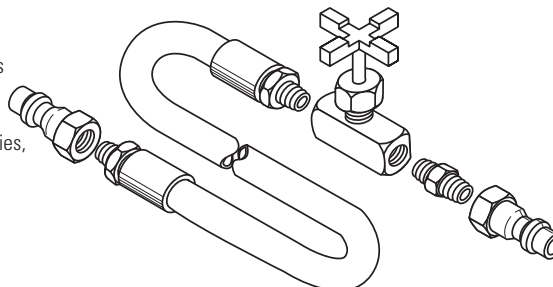
Model: Challenger 65 Agricultural Tractor

Warranty: None

- Fabricated tools (FT) for servicing Challenger 65 Agricultural Tractor

FT2220 Hose Assembly

- Required to check implement hydraulic system for low pressure standby, margin pressure, and detent kickout pressure
- Installed in "lift" and "drop" ports of one set of implement hydraulic couplers
- Made up of parts available from Caterpillar except for valve and nipple assemblies which may be purchased locally; use Parker MV800S Valve, or equivalent, and Parker 8010-4 or Aeroquip FD76-02-08-10 Nipple Assemblies, or equivalent; nipple assemblies must conform to ASAE S366.1, SAE J1036 or ISO 5675 specifications
- Maximum working pressure of 1/2 inch ID hose: 4000 PSI

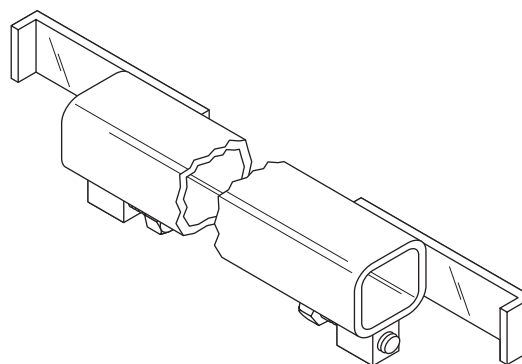


Reference

SEN3346, Challenger 65 Service Manual, Systems Operation Testing and Adjusting Module, procedure and lists other required pieces of test equipment

FT2227 Hoist Support Assembly

- Used as cross beam inside cab for supporting hoist when removing and installing steering and charge pump group; pump group is passed through access hole in floor of cab
- Easily fabricated from 50.8 mm (2.0 in) square tubing and mild steel bar stock
- 2D-2285 Bolts used to lock support in place after it is installed inside cab across front and rear cross structural pieces of ROPS

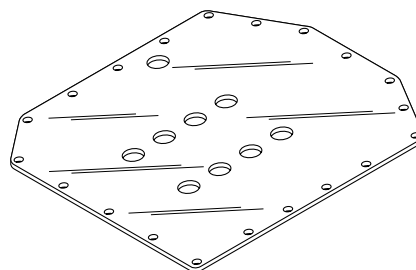


Reference

SEN3348, Challenger 65 Service Manual, Vehicle Systems Disassembly and Assembly module, instructions to ready cab to remove and install pump group

FT2235 Transmission Test Cover

- Used in place of regular transmission cover when troubleshooting transmission hydraulic system
- Has set of access holes that allows connection of pressure gauges to pressure taps in control valve group
- Contains transmission oil in transmission case during troubleshooting process
- Made of 1/4 inch plexiglass



Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and AssemblyMotor Grader Controls,
Cable Control and WinchLoader Lift Arm and
Excavator ImplementImplements, Frame,
Hitch and Suspension

FT2228 Hose Group

SMCS Code: 4150-041, 4197, 4198, 0784

Model: All Challenger Models

Warranty: None

- Used to service Mobil-Trac system (updates current group with fittings to be used on 65C and 75C machines beginning with serial numbers 2ZJ1-UP and 4KK1-UP)
- Used to connect implement hydraulic system to belt tension cylinders to extend cylinders in order to work on undercarriage
- Consists of two different length hose assemblies with double-ended and triple-ended coupler assemblies

Item	Part No.	Description
1	9X-2017	Nipple Assembly
2	026454	Pipe Nipple
3	3B-7255	Bushing
4	3K-0360	O-ring Seal
5	2M-9780	O-ring Seal
6	1P-2375	Coupler Assembly Connector
7	1P-2376	Coupler Assembly Connector
8	1P-2377	Dust Plug Assembly
9	—	Collet Stem Assembly
10	—	Hose
11	5P-1838	O-ring Adapter
12	5P-4481	O-ring Adapter
13	—	Sleeve
14	—	Collet Stem Assembly
15	1Y-0413	Pipe Tee
16	6L-9952	Adapter
17	3D-2824	O-ring Seal

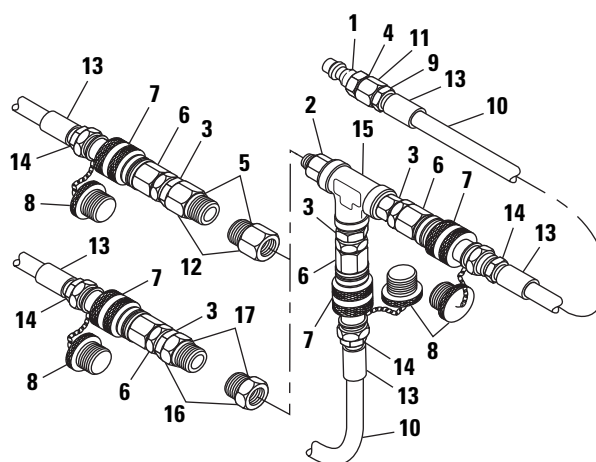
This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Application Procedure

- Install triple-ended coupler assembly ("A") into pressure port of left hand tensioner cylinder. Use caution when removing plug from port. Remove plug slowly, allowing any pressure within cylinder to bleed off before completely removing plug.
- Install double-ended coupler assembly ("B") into pressure port of right hand tensioner cylinder. Use caution when removing plug from port. Remove plug slowly, allowing any pressure within cylinder to bleed off before completely removing plug.
- Connect appropriate end ("C") of longer length of hose into lift port of one of implement hydraulic couplers.

Reference

SENR3344, Service Manual

1U-5525 Attachment Group for Discontinued
1U-5000 Auxiliary Power Unit

SMCS Code: 1401-045, 7000-552, 7000-555

Model: 785, 789 Off-Highway Trucks

Warranty: Six Months

- Contains all hydraulic fittings, hoses, and electrical cables to connect **discontinued** 1U-5000 to either the 785 or 789

Reference

SEHS8880, Special Instruction

Service/Repair Parts		
Part No.	Description	Qty.
1U-5484	Hose Assembly	1
1U-5485	Hose Assembly	2
1U-5486	Connector Assembly	1
1U-5552	Shipping Case	1
1U-5772	Gauge Assembly	1
1U-8330	Hose Assembly	1
1U-8331	Conversion Group	1
8S-2632	Battery Connection Cable Plug Assembly	1
327-9137	Conversion Group	1

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.



Relief Valve Manifolds

SMCS Code: 4322-025, 5117-036

Model: Challenger 65, 65B, and 75 and D8N Track-Type Tractor

Warranty: Six Months

- Used to test and adjust cartridge type relief valves
- Used with **discontinued** 1U-8900 Cartridge Relief Valve Tester and **discontinued** 4C-4441 Cartridge Relief Valve Tester
- Greatly simplifies testing — significantly reduces time spent testing each relief valve
- Each manifold has 2 separate ports; both ports have independent pump and tank connections
- Length x Width x Height: 127 x 50 x 101 mm (5.0 x 2.0 x 4.0 in)
- Weight: 5 kg (11.0 lb)



Typical Relief Valve Manifold

Reference

NEHT6031, Test Procedure

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

9U-5785 Relief Valve Manifold

One port tests 9T-4892 High Pressure Relief Valves used in the differential steering pump on Challenger 65, 65B, and 75

9U-5829 Relief Valve Manifold

One port tests 6E-3578 Steering Pump Charge Pressure Relief Valves used in Challenger 65B and 75

299-1731 Manifold

SMCS Code: 5117

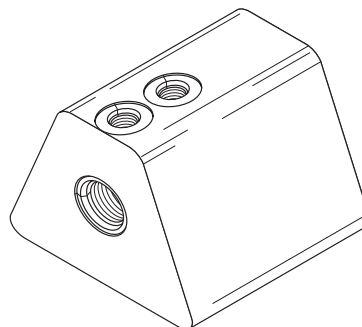
Model: 216, 226, 232, 236, 242, 246, 248, 252; 262, 268, 256, 272 Skid Steer Loaders
247, 257, 267, 277, 287, 289, 297 Multi-Terrain Loaders

Essential Tool

Warranty: Six Months

NEW TOOL

- Used to test 216-6160, 216-6161, and 289-0850 Relief Valves



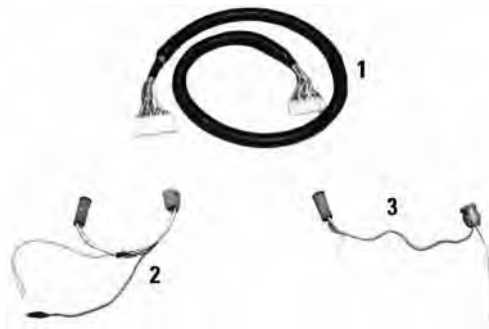
Harnesses

SMCS Code: 0784

Model: E200B and EL200B Excavators

Warranty: Six Months

- Required diagnostic tools for servicing electronic power unit control system
- Special test harnesses to aid serviceman whenever adjustments need to be made to electronic power unit control system; may be necessary to tap into various circuits to check for voltage, current, resistance, or continuity
- Also serve as "tools" for troubleshooting electronic system



Reference

SEN4527, Testing and Adjusting E200B and EL200B Excavators Hydraulic and Electronic Systems (a module of SEN4530, E200B/EL200B Service Manual)

SESV1569, Service Training Meeting Guide (STMG), "E(L)200B Electronic Power Unit Control"

Item	Part No.	Description	Use
1	990048	Extension Harness	In electronic control circuit
2	990049	Test Harness	To check governor control potentiometer
3	990050	Test Harness	To check the Proportional Reducing Valve (PRV) on E(L)200B Excavator

Wear Gauge Pins

SMCS Code: 0784

Model: Most Caterpillar Models

Warranty: Six Months

- Used to accurately measure spline wear on hydraulic pump and motor shafts and to determine shaft reusability
- Placed in spline teeth 180° apart; distance across or between pins determined by using micrometer

Wear Gauge Pins

4C-5852

4C-5858

4C-6367

4C-6368

4C-8767 Coupling, XT5 Hose

SMCS Code: 5050-032, 5050-082, 0784-012, 0774-012, 5057-016, 5057-078

Model: All Models

Warranty: Six Months

- Used with 1U-9551 and 1U-8761 Portable Hydraulic Testers for testing hydraulic oil flows and pressures
- With 4C-6481 and 4C-6482 Quick Disconnect Fittings, it creates a safer connection for higher working pressure of 6000 PSI
- For XT5 hose 1 inch, 1½ inch SAE O-ring straight thread
- Used with 5P-1010 Sleeve for XT5 hose 1¼ inch
- Working pressure: 6000 PSI

Reference

Process should be done as illustrated in reusability guidelines SEBF8133 and SEBF8136.

Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

Implements, Frame, Hitch and Suspension

Filter Carts

*This article has changed
since the printing of the 2009
Dealer Service Tools Catalog.*

Auxiliary Filtration System Cart Selection

Recent trends requiring increased production and efficiency of construction and mining equipment have forced heavy equipment manufacturers to design hydraulic and powertrain systems with increasingly sophisticated components. These components require a high level of cleanliness, not only in the manufacture, but also in the rebuild practices and operating fluids.

Caterpillar auxiliary filter systems are designed for dealers to effectively clean fluid to current machine ISO specifications. Each system incorporates frames, connections, pumps, filter housings and elements for specific systems and fluids. When incorporated with the Contamination Control guidelines and procedures, along with particle trend analysis, the dealer can develop an effective tool to drastically increase component life, eliminate early hour failures and add value to Customer Service Agreements.

It is important to match the filtration system and procedure to the machine system and fluid. This will greatly increase the value and reduce the time needed to filter fluids to the appropriate ISO specification. The chart illustrates specific applications of the filter systems as well as general information, Tool Operating Manual and Contamination Control Guideline media numbers.

Many of the systems shown can be modified to perform multiple functions. Please contact Service Tool Division, Capital and Shop Products for more information.



245-1769

245-1769	
Application	Final drive and rear axles with more than 380 L (100 gal) capacity
Air powered	340 lpm (90 gpm) Diaphragm pump
Oil	50W+
Standard filtration	10-micron absolute element
Reference	SEBF8438 Contamination Control Guideline NEHS0847 Tool Operating Manual



188-3242

188-3242	
Application	Reservoirs with greater than 115 L (30 gal) and less than 380 L (100 gal) capacity
Air powered	227 lpm (60 gpm) Diaphragm pump
Oil	10W - 30W
Standard filtration	25-, 10-, 5-, 2-micron or 5-micron H2O separator element available
Reference	SEBF8447-02 Contamination Control Guideline NEHS0778 Tool Operating Manual
Kit version of 188-3242	227-2479



174-9158

174-9158	
Application	Reservoirs with less than 115 L (30 gal) capacity
Air powered	64 lpm (17 gpm) Gear pump
Oil	10W - 30W
Standard filtration	25-, 10-, 5-, 2-micron absolute or 5-micron H2O separator element available
Reference	SEBF8493-02 Contamination Control Guideline NEHS0848 Tool Operating Manual
204-7392	This cart is similar to 174-9158 Filter Cart, but has Cat 844 hose with Flush Face Quick Disconnects.



231-6284

231-6284	
Application	Track-type tractor axles and final drives with less than 115 L (30 gal) capacity
Air powered	115 lpm (30 gpm) with 115 L (30 gal) reservoir Diaphragm pump
Oil	10W - 60W
Standard filtration	25-, 10-, 5-, 2-micron absolute
Reference	SEBF8797 Contamination Control Guideline NEHS0899 Tool Operating Manual

Vehicle Guidelines for Filtration Procedures

The following guidelines and procedures were developed to assist the dealer in implementing and maintaining a consistent contamination control program. These documents provide a method and process to effectively maintain specific machine systems, utilizing Caterpillar Auxiliary Filtration System Carts. Refer to Service Information System (SIS) for periodic updates.

Vehicles and Ranges	Hydraulic	Trans.	Axles	Other
Off Highway Trucks				
769-797	SEBF8446-01			
769-793B		SEBF8445		
769D-797 (Without Trans. Tank)		SEBF8460-01		
769-777			SEBF8454	
785-797			SEBF8438	
785-789 Cleaning Rear Axle Housings				SEBF8366
793 Cleaning Rear Axle Housings				SEBF8370
785-793 Cleaning Rear Housings (Video)				SEVN4142
793C & 797 Spindles (Cleaning)				SEBF8490
793C & 797 Spindles (Kidney Looping)				SEBF8483
785 & 789 Rear Axle Housing (Cleaning)				SEBF8366
793 Rear Axle Housing (Cleaning)				SEBF8370
769-797 OHT Steering				SEBF8724
Wheel Loaders				
910-980 Wheel Loader	SEBF8493-01			
988-994 Wheel Loader	SEBF8494-01			
990-994 Wheel Loader Steering				SEBF8725
Wheel Loaders with E/D		SEBF8452-03		
Wheel Loaders W/O E/D		SEBF8458-04		
994D		SEBF8459		
988B-992G & 994 Wheel Loader			SEBF8464	
IT14G-IT62G	SEBF8493-01			
Track Type Tractors & Pipe Layers				
D3-D6 & 561H-583R	SEBF8455-01			
D7-D11 & 589	SEBF8456-02			
D6R-D11 & 561M-589		SEBF8465-03		
Excavators				
5080-5230	SEBF8703			
M312-M325B	SEBF8706-01			
311-385B L	SEBF8447-02			
All Models - Filtering Auxiliary Circuit				SEBF8757-01
Engines				
Filtering				SEBF8405
Particle Counting while on Dyno				SEBF8442-02
Motorgraders				
All	SEBF8453			
All except 24H		SEBF8461		
24H		SEBF8462		
Wheel Tractor Scrapers				
All	SEBF8457			
611-651E		SEBF8463		
623-651 G&E		SEBF8481		
627-657 G&E		SEBF8750		
Articulated Dump Trucks				
D25D-D400E and 725-730	SEBF8489-03			
D25D-D400E and 725-730		SEBF8486		
735-740	SEBF8798-01			
Generic Contamination Control Procedures				
Proper Oil Changing Procedures	SEBF8470			
Proper SOS Sample Collection	SEBF8482			
Procedure for using Filtration Carts				SEBF8279
Adding Filtration Capability to Solvent Parts Washers				SEBF8448
Procedure for Filtering F/D, Rear Axles, and Differentials			SEBF8797	SEBF8797

Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

Implements, Frame, Hitch and Suspension

Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and AssemblyMotor Grader Controls,
Cable Control and WinchLoader Lift Arm and
Excavator ImplementImplements, Frame,
Hitch and Suspension

Vehicles and Ranges	Hydraulic	Trans.	Axles	Other
Challenger Ag Tractors				
Row Crop 35-55	SEBF8484	Hydraulic and Transmission Oil is combined in one sump		
Backhoe Loaders				
416-438	SEBF8333			
416D-442D	SEBF8780			
Forestry Products				
554-574B Forwarder	SEBF8788			
554-574B Forwarder		SEBF8788		
508-545 Skidders	SEBF8779			
533-543 Wheel Feller Buncher	SEBF8786			
550-580B Wheel Harvester	SEBF8787			
550-580B Wheel Harvester		SEBF8787		
Track Loaders				
931C-973C	SEBF8758			
Telescopic Handlers				
TH62-TH103	SEBF8785			
TH210-TH215	SEBF8802			
TH220B-TH460B	SEBF8803			
Paving Product				
Cleaning Asphalt Pavers	SEBF8440			
CS323-583D	SEBF8781			
CP323E-334D	SEBF8781			
CB335D-634C	SEBF8781			
PF209B-PS360B	SEBF8792			
Underground Mining				
R1300-R2900 Load haulers	SEBF8791			
AE40-55 Trucks	SEBF8790			
69D-73D Trucks	SEBF8789			
Compact Construction Equipment				
301.5-305, 902-908, 216-277	SEBF8726			

4C-9475 Transfer Pump Filter Cart, 115 Volt AC, 60 Hz**169-7158 Transfer Pump Filter Cart, 220 Volt AC, 50 Hz**

SMCS Code: 0680

Model: All Hydraulic Systems

Warranty: Six Months

European Union compliant, CE marked (169-7158)

- 169-7158 replaces discontinued 4C-9828
- Removes contamination from hydraulic system fluid without removing and replacing fluid from machine
- Environmentally safe method of off-loading used fluid during changes
- As part of normal hydraulic system maintenance, helps prolong seal life and life of other wearing parts and aids in smooth valve and control actuation

References

SEHS9242, Special Instruction

NEEG2735, Decal (CE)



Motor	115 VAC, 60-cycle (or 220 VAC, 50 Hz), single phase, Hp TEFC, 16 amps full load
Filtration capability	13-micron, absolute Spin On filter
Gear pump flow	26 lpm (7 gpm)
Inlet strainer	100 mesh Spin On
Cart wheels	20.2 cm (8 in) semi pneumatic
Magnetic plug	Removable for cleaning
Hose	19.05 mm (¾ in) diameter, 182.88 cm (6 ft) long, end fitting ¾ NPT

Part No.	Description
4C-9479	Filter Element
4C-9478	Electric Motor (115 VAC, 60 Hz)
169-7160	Electric Motor (220 VAC, 50 Hz)
4C-9476	Gear Pump
9U-6987	Filter Head

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

273-3273 Portable Filtration Cart

SMCS Code: 5050

Model: All Models

Essential Tool

Warranty: Six Months

European Union compliant, CE marked

- Used to filter bulk quantities of hydraulic oil during transfer or kidney loop operations
- Used with dealer-supplied hoses and quick disconnects
- Filters oil through a 149-micron wire mesh element to protect pump from debris in unfiltered oil
- A 10- and then a 5-micron spin-on filter removes contaminants to provide clean fill oils
- Adjustable flow control from 0 to 40.0 lpm (0 to 10.6 gpm)
- Compact design uses extendable handles for mobility in shop or field applications
- Spin-on filters provide quick and easy maintenance
- Built-in drip tray prevents ground contamination from spilled oil
- Dirty filter indicators are attached to both output filter housings
- Two S-O-S ports allow oil sampling before and after filtration
- Requires a dealer-installed plug on 6 m (20 ft) power cord
- Rolls easily on rubber tires

References

NEHS0962, Tool Operating Manual,
273-3273 Portable Filtration Cart

SEBF9086, Oil Sample Pre-treatment Procedure for Use with Automatic Particle Counters



Service/Repair Parts	
Part No.	Description
9U-6985	149-Micron Suction Filter Element
9U-5870	10-Micron Filter Element
9U-6983	5-Micron Filter Element
190-8318	Suction Quick Disconnect
190-8319	Return Quick Disconnect
201-8057	Dust Cap (Suction)
201-8059	Dust Cap (Return)
7X-3387	S-O-S Sampling Valve
6V-0852	Dust Cap (S-O-S port)

Input voltage	200 - 240 VAC Single-Phase
Frequency	50/60 Hz
Power cord	16-3 gauge, 600 V, 6 m (20 ft) long
Power cord plug	Dealer-supplied
Motor speed	0-3200 RPM
Pump flow	0 - 40 lpm (0 - 10.6 gpm)
Pressure bypass valve	414 kPa (60 PSI)
Handle length	79 cm (31 in) retracted 129 cm (51 in) extended
Height	51 cm (20 in)
Width	61 cm (24 in)
Dry weight	66 kg (145 lb)
Wheels	25 cm (10 in) diameter hard rubber

Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and Assembly

Motor Grader Controls,
Cable Control and Winch

Loader Lift Arm and
Excavator Implement

Implements, Frame,
Hitch and Suspension

Transfer Carts and Kidney Loop Cart

SMCS Code: 5050-044, 5050-070, 5068

Model: All Models

Warranty: Six Months

European Union compliant, CE marked (169-7159, 174-9158, and 204-7392)

- 169-7159 replaces discontinued 127-8782; 174-9158 replaces discontinued 129-0849
- Used to filter petroleum based fluids when transferring from a barrel or reservoir to machine
- Ensures contamination-free oil transferring
- Easily portable in shop or field
- Fast maintenance with easy-change spin-on filters — dirty filter indicators on both suction and discharge lines
- Allows easy “top off” of hydraulic or engine oil systems
- Can be used with glycols when proper filter is incorporated

*This article has changed
since the printing of the 2009
Dealer Service Tools Catalog.*

127-8781 Transfer Cart, 110 Volt AC, 60 Hz

169-7159 Transfer Cart, 220 Volt AC, 50 Hz

- “Gas type” discharge shut off nozzle for convenience
- Barrel suction stand pipe (included)
- 9U-7448 Hoses also act as hose extensions (order extra for length needed)

174-9158 Transfer Cart (Air Motor Driven)

- Can be used for kidney looping
- “Gas type” discharge shut off nozzle for convenience
- Barrel suction stand pipe (included)
- 9U-7448 Hoses also act as hose extensions (order extra for length needed)

204-7392 Kidney Loop Cart (Air Motor Driven)

- Comes with two 25.4 mm (1 in) Cat 844 hoses, one with a male, one with a female Quick Disconnect fitting

References

NEHS0634, Tool Operating Manual, Procedures for using Transfer/Filter Cart (127-8781, 169-7159, and 174-9158)

NEEG2735, (CE)

NEHS0848, Tool Operating Manual, 204-7392 Air Motor Driven Filtering Cart (for use on all Caterpillar products)

SEBF8405, Kidney Loop Filtration Process for Rebuilt Engines (uses 174-9158 and 204-7392)

SEBF8453, Bulletin, Procedure for Filtering Motor Grader (all models) Hydraulic Oil (uses 174-9158)

SEBF8455, Bulletin, Procedure for Filtering Track-Type Tractor (D3-D6) Hydraulic Oil (uses 174-9158)

Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

Implements, Frame, Hitch and Suspension

	127-8781	169-7159	174-9158	204-7392
Voltage	110 VAC 60 Hz	220 VAC 50 Hz	—	—
Motor	1.5 Hp electric motor	1.5 Hp electric motor	—	—
Motor (air)	—	—	4 Hp @ 100 PSI	4 Hp @ 100 PSI
Pump (air)	—	—	56 lpm (15 gpm)	56 lpm (15 gpm)
Pump capacity (50 Hz)	—	53 lpm (14 gpm)	—	—
Pump capacity (60 Hz)	64 lpm (17 gpm)	—	—	—
Filtration (suction)	100 mesh screen	100 mesh screen	100 mesh screen	100 mesh screen
Filtration (discharge)	13 micron (absolute)	13 micron (absolute)	13 micron (absolute)	13 micron (absolute)
Hose (suction)	31.8 mm x 3 m (1.25 in x 10 ft) translucent hose	31.8 mm x 3 m (1.25 in x 10 ft) translucent hose	31.8 mm x 3 m (1.25 in x 10 ft) translucent hose	—
Hose (suction)	—	—	—	25 mm x 3 m (1.0 in x 10 ft) Cat 844 with female Quick Disconnect
Hose (discharge)	25 mm x 3 m (1.0 in x 10 ft) black hose	25 mm x 3 m (1.0 in x 10 ft) black hose	25 mm x 3 m (1.0 in x 10 ft) black hose	—
Hose (discharge)	—	—	—	25 mm x 3 m (1.0 in x 10 ft) Cat 844 with male Quick Disconnect
Barrel suction stand pipe	1.2 m (4.0 ft) long	1.2 m (4.0 ft) long	1.2 m (4.0 ft) long	—
Tires	203 mm (8 in) semi-pneumatic	203 mm (8 in) semi-pneumatic	203 mm (8 in) semi-pneumatic	203 mm (8 in) semi-pneumatic

Typical Transfer Cart (Electrical)



Part No.	Description
—	Barrel Suction Stand Pipe
9U-7448	Suction Hose, 6.1 m (20 ft)
9U-5870	Element, 13-micron absolute
9U-6985	Element, 100 mesh
9U-6983	Element, 5-micron
9U-6984	Element, 15-micron
188-7027	Element, 25-micron
198-3188	Element, 2-micron
9U-7450	Gear Pump
127-8783	Electric Motor, 110 VAC, 60 Hz, 1.5 Hp single-phase, TEFC
127-8784	Electric Motor, 220 VAC, 50 Hz, 1.5 Hp, single-phase, TEFC
Not shown	9U-7449 Discharge Nozzle

Typical Transfer Cart (Air Motor Driven)



This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

FT2976 Adapter

SMCS Code: 3010, 3030, 3064, 3080, 3177

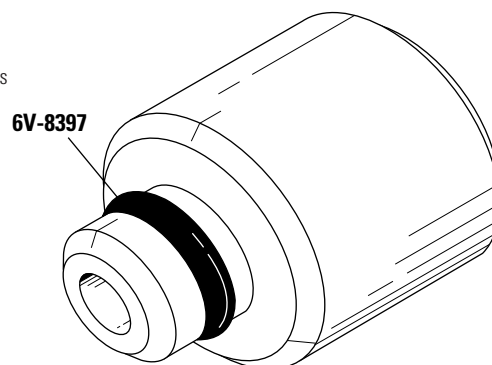
Model: All Cat Backhoe Loaders

Warranty: None

- Used to create a vacuum, holding oil inside transmission, so appropriate adapters and quick-disconnect fittings can be installed in drain port
- Used with a 204-7392 Filter Cart and a 5P-0306 Vacuum Transducer
- Allows transmission oil to be filtered with a kidney loop oil filtering procedure
- 7T-3251 Vent (breather) must be removed to install adapter
- Uses a 6V-8397 O-ring Seal
- Material: brass, aluminum, or steel

Reference

SEBF8826, Procedure for Kidney Looping Backhoe Loader Transmission Oil

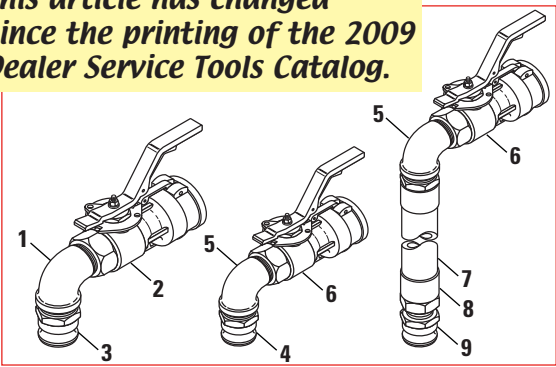


Hose Assembly Adapters

SMCS Code: 5050
Model: 769, 771, 773, 775, 777, 785, 789, 793, and 797 Off-Highway Trucks
Essential Tool
Warranty: Six Months

- Used to provide an ON/OFF valve for hoses on 245-1769 Filter Cart Group
- 90 degree elbow relieves stress on coupling and adapters and helps when clearance is a problem
- ON/OFF valve keeps oil contained inside hose(s) — environmentally safe
- Makes installation and removal quicker and cleaner

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.



Item	Part No.	Description	Size	Use	Required
1	7B-7138	Street Elbow	50.8 mm (2 in)	Used on inlet side of filter cart	1
2	190-8323	Quick Disconnect Coupler	63.5 mm (2½ in)		
3	190-8325	Quick Disconnect Nipple	50.8 mm (2 in)		
4	9U-5974	Quick Disconnect Nipple	1½ x 1½ male NPT thread		
5	5B-7666	Street Elbow	38.1 mm (1½ in)	Used on outlet side	2
6	190-8321	Quick Disconnect Coupler	50.8 mm (2 in)		
7	8X-6295	Hose Assembly (NPTF)			
8	3B-6492	Coupling	38.1 mm (1½ in) with 4.5 m (15 ft) hose	Used on outlet side when additional hose length is required	2
9	199-2713	Nipple	38.1 mm (1½ in)		

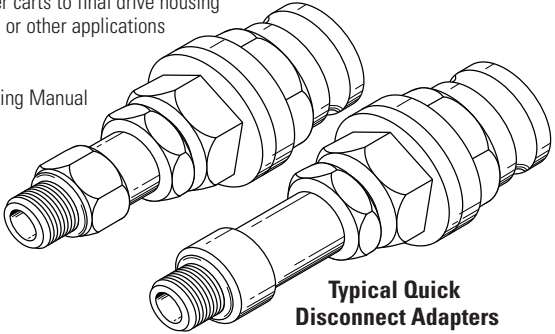
1½ and 2 inch Quick Disconnect Adapters

SMCS Code: 4050, 5050, 0680
Model: 769, 771, 773, 775, 777, 785, 789, 793, and 797 Off-Highway Trucks
Essential Tool
Warranty: Six Months

- Used to connect filter carts to final drive housing and differential case or other applications

Reference

NEHS0779, Tool Operating Manual



Typical Quick Disconnect Adapters

Part No.	Size	Use
1½ in Quick Disconnect Fittings		
190-9935	1½-12 thd	
190-9937	1½-12 thd	769, 771, 773, 775, 777 final drive housing
190-9939	1½-12 thd	
190-9941	1½-12 thd	
190-9943	1½-12 thd	785, 789, 793, 797 final drive housing
2 in Quick Disconnect Fittings		
190-9936	1½-12 thd	
190-9938	1½-12 thd	
190-9940	1½-12 thd	
190-9942	1½-12 thd	769, 771, 773, 775, 777, 785, 789, 793 differential case
190-9944	1½-12 thd	797 differential case

246-1157 Filter Cart Group

SMCS Code: 4050, 4100
Model: 769, 771, 773, 775, 777 Off-Highway Trucks
Warranty: Six Months

European Union compliant, CE marked

- Replaces discontinued 194-2897
- Used to flush and clean rear axle and final drive assemblies; also can be used in many filtering applications for oil contamination control
- Filters hydraulic fluids from 5W to 90W
- Standard 10-micron filter element with 2271 lpm (600 gpm) capacity — large capacity extends time between filter element changes
- Easily moved around in field conditions on three 30 cm (12.0 in) pneumatic tires
- Oil is pumped through filter cart using an air-powered, diaphragm pump
- Maximum output pressure of fluid being pumped is equal to air inlet air pressure
- Add-on differential pressure gauge (dirty filter indicator) to indicate filter element changes
- All hose assemblies are made from Caterpillar 844 wire-reinforced hose (will not collapse when filtering hot oil)
- Extra tall hose hook for ease of hose storage
- Built-in storage box to hold optional adapter fittings

Reference

NEHS0809, 194-2897 and 246-1157 Filter Cart Group

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

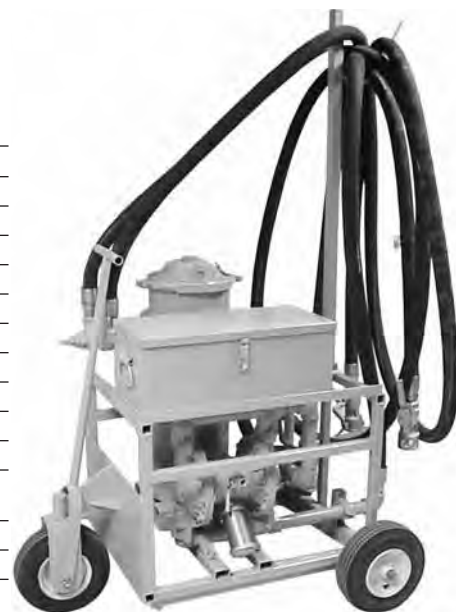
Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

Implements, Frame, Hitch and Suspension

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Operating pressure	138 - 827 kPa (20 - 120 PSI)
Variable delivery	0 - 409 lpm (0 - 90 gpm)
Supply air consumption	0.47 L/s (1 cfm) per 4.55 lpm (1 gpm) of fluid pumped
Suction lift	Up to 5.5 m (18 ft)
Operating temperature	0° to 93°C (2° to 200°F)
Liters (gallons) per cycle	1.9 L (0.5 gal)
Standard filtration	10-micron absolute
Outlet hoses (2)	61 cm (20 ft) long with 38.1 mm (1.5 in) diameter ends
Inlet hose (1)	30 cm (10 ft) long with 50.8 mm (2.0 in) diameter end
Storage box	612.0 x 273.0 x 241.0 mm (24.0 x 11.0 x 9.5 in)
Noise level	82 dB @ 758 kPa (110 PSI) air pressure
Overall dimensions	1295 x 915 x 1219 mm (51 x 36 x 45 in) without 609 mm (24 in) hook bar
Weight	163 kg (360 lb)
Filter working pressure	1034 kPa (150 PSI)



Part No.	Description
188-7019	Pump
6Y-8134	O-ring Filter Cover Seal (smaller diameter)
8J-8879	O-ring Cover Seal (larger diameter)
185-1375	Filter Element, 25-micron absolute
188-7020	Filter Element, 5-micron absolute
212-7125	Filter Element, 3-micron
192-1560	Filter Element, 10-micron
195-3164	Air Muffler
188-7018	Diaphragm Repair Kit
196-9504	Air Valve Repair Kit
Not shown	
218-8445	Delta Pressure Gauge (246-1157 only)

Dust Caps/Plugs Used with discontinued 194-2897 Filter Cart Group

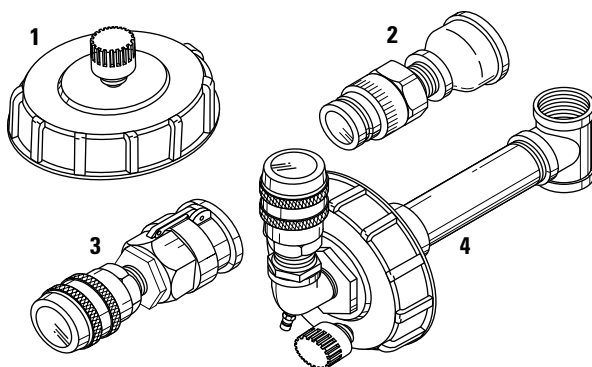
8C-3451	12.7 mm (½ in) diameter rubber cap for S-O-S port
201-8129	50.8 mm (2 in) diameter aluminum male plug used with 190-8321 Quick Disconnect Coupler or return line
201-8128	63.5 mm (2½ in) diameter aluminum male plug used with 190-8321 Quick Disconnect Coupler or suction line
201-8553	50.8 mm (2 in) diameter aluminum female cap used with the following adapters: 190-9935, 190-9937, 190-9939, 190-9941, or 190-9943
201-8552	63.5 mm (2½ in) diameter aluminum female cap used with the following adapters: 190-9936, 190-9938, 190-9940, 190-9942, or 190-9944

FT3016 Contamination Control Caps and Fittings for Plastic Oil Totes

SMCS Code: 4050, 5050

Warranty: None

- Used to filter oil inside plastic tote (1050 L [277 gal] ± 100 L [26 gal]) using a kidney-loop system
- Used with 188-3242 Hydraulic Filter Cart
- Provides a quick and easy way to remove and then return filtered oil into a plastic tote



This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Part No.	Description	Qty.
Storage Cap (Item 1)		
255-4302	Screw-On Cap	1
272-5131	Dessicant Breather	1
Threaded Suction Connection¹ (Item 2)		
—	Coupling (2 in NPT to 1 in NPT)	1
3B-7280	Close Nipple (1 in NPT)	1
190-8319	Quick Disconnect Nipple with 1 in NPT	1
Cam-Lock Suction Connection² (Item 3)		
263-9602	Cam-Lock Quick Disconnect with 2 in NPT	1
141-2502	Reducer Bushing (2 in to 1 in NPT)	1
3B-7280	Close Nipple (1 in NPT)	1
190-8319	Quick Disconnect Nipple with 1 in NPT	1
Return Connection (Item 4)		
255-4302	Screw-On Cap	1
183-3873	Breather Assembly	1
255-4305	Bulkhead Fitting	1
5B-7666	Street Elbow (1½ in NPT)	1
7X-3387	Sampling Valve (¼ in NPT)	1
3B-7280	Close Nipple (1 in NPT)	1
8B-5774	Reducer Bushing (1½ in x 1 in NPT)	1
190-8316	Quick Disconnect Coupling with 1 in NPT	1
1H-2815	Pipe Nipple 1½ in NPT x 152 mm (6 in)	1
1L-2782	Pipe Tee (1½ in NPT)	1

All part numbers in the table have a six month warranty

¹ For oil totes with 2 in NPT threaded lower connection

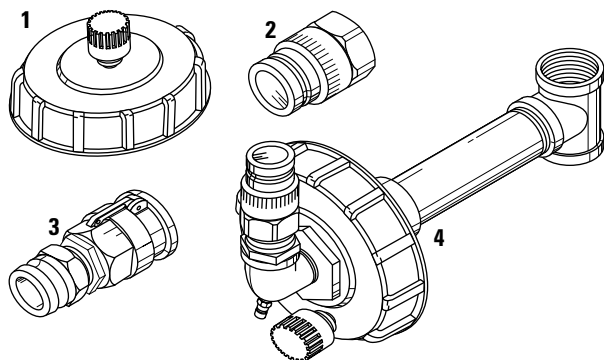
² For oil totes with quick disconnect cam-lock lower connection

FT3017 Contamination Control Caps and Fittings for Plastic Oil Totes

SMCS Code: 4050, 5050

Warranty: None

- Used to filter oil inside plastic tote [1050 L (277 gal) ± 100 L (26 gal)] using a kidney-loop system
- Used with **discontinued** 194-2897 or 246-1157 Hydraulic Filter Cart
- Provides a quick and easy way to remove and then return filtered oil into a plastic tote



This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Part No.	Description	Qty.
Storage Cap (Item 1)		
255-4302	Screw-On Cap	1
272-5131	Dessicant Breather	1
Quick Disconnect Suction Connection (Item 2)		
190-8322	Quick Disconnect Nipple with 2 in NPT	1
Cam-Lock Suction Connection (Item 3)		
263-9602	Cam-Lock Quick Disconnect with 2 in NPT	1
3B-7296	Close Nipple (2 in NPT)	1
3N-9409	Reducer Bushing (2½ in to 2 in NPT)	1
263-9956	Cam-Lock Fitting with 2½ in NPT	1
Return Connection (Item 4)		
255-4302	Screw-On Cap	1
183-3873	Breather Assembly	1
255-4305	Bulkhead Fitting	1
5B-7666	Street Elbow (1½ in NPT)	1
7X-3387	Sampling Valve (¼ in NPT)	1
3L-8993	Close Nipple (1½ in NPT)	1
190-8320	Quick Disconnect Nipple with 1½ in NPT	1
1H-2815	Pipe Nipple 1½ in NPT x 152 mm (6 in)	1
1L-2782	Pipe Tee (1½ in NPT)	1

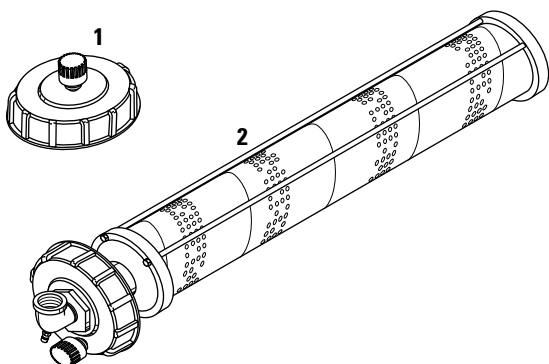
All part numbers in the table have a six month warranty

FT3018 Contamination Control Filter for Plastic Oil Totes

SMCS Code: 4050, 5050

Warranty: None

- Used to filter oil inside plastic tote [1050 L (277 gal) ± 100 L (26 gal)] using a kidney-loop system
- Used with dealer supplied hoses, fittings, and hydraulic pump
- Provides a quick and easy way to filter oil as it is pumped into plastic tote



This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Part No.	Description	Qty.
Storage Cap (Item 1)		
255-4302	Screw-On Cap	1
183-3873	Breather Assembly	1
Return Filter (Item 2)		
255-4302	Screw-On Cap	1
183-3873	Breather Assembly	1
255-4305	Bulkhead Fitting	1
5B-7666	Street Elbow (1½ in NPT)	1
7X-3387	Sampling Valve (¼ in NPT)	1
3L-8993	Close Nipple (1½ in NPT)	1
—	Filter Element (10-micron) ¹	1
—	Filter Housing	1
2D-6235	Locknut (¼-20)	6
4B-4276	Flat Washer	6
—	Threaded Rod ¼-20 x 760 mm (30 in)	3
—	Aluminum Base Plate 19 x 133 mm (0.750 x 5.25 in)	1
—	Aluminum Top Plate 19 x 133 mm (0.750 x 5.25 in)	1

All part numbers in the table have a six month warranty

¹ Reorder replacement filter elements as needed

Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

Implements, Frame, Hitch and Suspension

188-3242 Hydraulic Filter Cart Group

227-2479 Hydraulic Filter Cart in Kit Form

SMCS Code: 5050

Model: All Caterpillar Models

Warranty: Six Months

European Union compliant, CE marked (188-3242)

- Used to flush and clean hydraulic tanks or hydraulic systems; can also be used in any filtering application for oil contamination control
- Allows oil filtering directly from hydraulic tank — eliminates placing oil in separate filtering cart/container
- Filters hydraulic fluids from 5W to 90W
- Easily moved around in field conditions on three 30 cm (12.0 in) pneumatic tires
- Oil is pumped through the filter cart using an air-powered, diaphragm pump
- Maximum output pressure of fluid being pumped is equal to air inlet air pressure
- Differential pressure gauge (dirty filter indicator) indicates filter element change time
- All hose assemblies are made from Caterpillar 844 wire-reinforced hose (will not collapse when filtering hot oil)
- Extra tall hose hook for ease of hose storage
- Built-in storage box to hold optional adapter fittings

227-2479 (Not European Union Compliant)

- Includes every part needed to build 188-3242 Hydraulic Filter Cart
- Frame provided as item-numbered, unpainted steel pieces to be assembled and welded together
- Hoses not assembled
- Prints provided for welding and assembly

Reference

NEHS0778, 188-3242 Hydraulic Filter Cart Group

Operating pressure	138 - 827 kPa (20 - 120 PSI)
Variable delivery	0 - 409 lpm (0 - 90 gpm)
Supply air consumption	0.47 L/s (1 cfm) per 4.55 lpm (1 gpm) of fluid pumped
Suction lift	Up to 5.5 m (18 ft)
Operating temperature	0° to 93°C (2° to 200°F)
Liters (gallons) per cycle	1.9 L (0.5 gal)
Four (4) gang parallel filter head	Permits 4 times filter area to capture particulates and extends filter life
Standard filtration	10-microns
Outlet hose (one)	30 cm (10 ft) long with a female quick-disconnect end
Inlet hose (one)	30 cm (10 ft) long with a male quick-disconnect end
Storage box	736 x 406 x 305 mm (29 x 16 x 12 in)
Noise level	82 dB @ 758 kPa (110 PSI) air pressure
Overall dimensions	1295 x 889 x 1143 mm (51 x 35 x 45 in) with hook bar 1956 mm (77 in)
Weight	163 kg (360 lb)



Part No.	Description
188-7019	Pump
9U-6985	Pre-filter Element, 100-Mesh
9U-5870	Filter Element, 10-Micron
195-3164	Air Muffler
9U-6986	Differential Gauge
8T-0846	Working Pressure Gauge
9U-6983	Filter Element, 5-Micron, optional
9U-6984	Filter Element, 25-Micron, optional
188-7027	Water Removal Element, optional
3H-0976	O-ring (Element to Head)

Dust Caps/Plugs Used with 188-3242 Hydraulic Filter Cart Group

8C-3451	½ in diameter rubber cap for S-O-S port
201-8057	66.8 mm diameter plastic/rubber plug used on 190-8316 and 190-8318 Quick Disconnect Coupler (female end)
201-8059	44 mm diameter plastic/rubber cap used on 190-8317 and 190-8319 Quick Disconnect Coupler (male end)

192-6432 Filter

SMCS Code: 5068

Model: All Caterpillar Service Vehicles

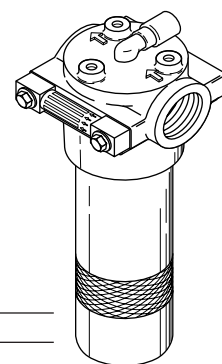
Warranty: Six Months

- Used to filter oil in high-volume applications
- Provides extended time between element changes
- Uses synthetic fiber filter elements
- Filter head is made of cast aluminum and bowl is made of steel for strength and durability
- Visual dirty element indicator shows when to change element
- Elements contain no metal
- Elements can be incinerated, crushed, or shredded

Working pressure	9,650 kPa (1,400 PSI)
Burst pressure	27,573 kPa (4,000 PSI)
Nominal flow	64 lpm (17 gpm)
In/out ports	SAE #12
Dirty element indicator	Pop-up style
Material	Aluminum head, steel housing with 3-micron cellulose media
Overall dimension	239 x 89 mm (9.4 x 3.5 in)
Weight	1.4 kg (3.0 lb)
Body-style	Canister

Cartridge Elements for 192-6432 Filter Group

Nominal Micron Rating	Media Material	Dirt Holding Capacity	Height / Diameter	Part No.
3	Cellulose	10.5 g (0.37 oz)	6 in (150 mm) / 2 in (50 mm)	192-6433
5	Cellulose	12 g (0.42 oz)	6 in (150 mm) / 2 in (50 mm)	226-5492
10	Cellulose	14 g (0.49 oz)	6 in (150 mm) / 2 in (50 mm)	226-5493



274-6783 Barrel Adapter

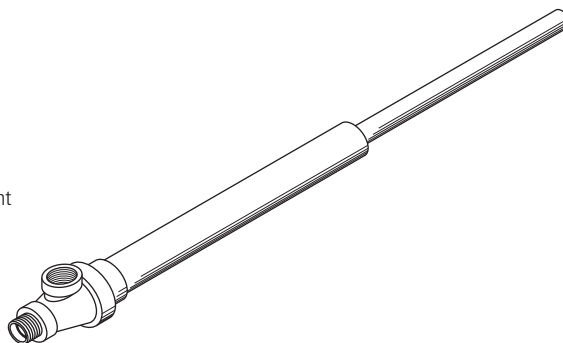
SMCS Code: 0784

Model: All Models

Essential Tool

Warranty: Six Months

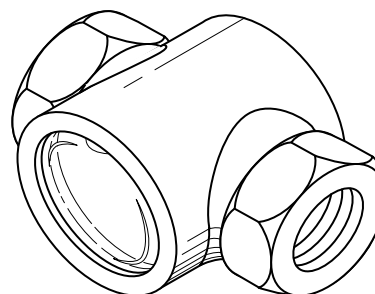
- Used to attach filtering units to 208 L (55 gal) barrels
- Used with 204-7392 Kidney Loop Filter Cart or equivalent
- All steel design is easy to clean
- Unit does not come with quick disconnect fittings
- Inserts into 2 inch NPT port of 208 L (55 gal) barrel
- Top port is return side (1 inch NPT male), and side port is suction side (1 inch NPT female)



Flow Indicator with Tempered Sight Glass

Warranty: Six Months

- Used to provide a means of viewing flow
- Made of brass with tempered sight glass on opposing sides
- Installs down stream of pump
- Stainless steel flapper shows the movement of fluid and prevents back flow to pump
- Does not restrict flow away from pump
- Viton seals provide long life
- Female NPT ports at each end



Part No.	Inlet and Outlet Thread Size	Sight Glass Diameter	Overall Size L x H x W	Maximum Pressure	Operating Temperature	Maximum Temperature
257-8843	1½ in NPT	69.0 mm (2.72 in)	141.0 x 79.0 x 70.0 mm (5.6 x 3.125 x 2.75 in)	1034 kPa (150 PSI)	-17° to 121°C (1° to 250°F)	204°C (400°F)

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Filter Head with Non-Collapsible Filter Elements

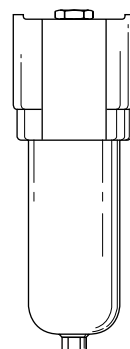
SMCS Code: 5068

Model: All Caterpillar Service Vehicles

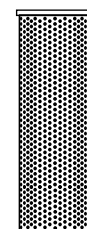
Warranty: Six Months

- Used to provide no-bypass filtering of hydraulic oils
- Used in service bays with drop-down oil lines or any other application requiring filtered, petroleum-based oil
- Non-collapsible filter elements work well with higher viscous hydraulic oils
- Filter head is made of cast aluminum with steel bowl for strength and durability

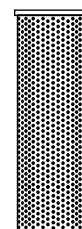
Filter Head	
Body-style	Canister
Mounting holes	5/16-18
Inlet and outlet ports	¾ NPT
Operating temperature range	-29° to 107°C (-20° to 225°F)
Material	Aluminum head with steel housing
Overall size	90.0 mm (3.5 in) square x 238.0 mm (9.4 in) long
Filter Elements	
Filter media	Synthetic
Overall size	50 mm (2 in) diameter by 150 mm (6 in) long
Collapse rating	206.8 bar (3000 PSI)



249-2931



249-2932



249-2933

Part No.	Description
249-2931	Filter Housing
249-2932	Filter Element, 10-Micron
249-2933	Filter Element, 24-Micron

Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

Implements, Frame, Hitch and Suspension

Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and AssemblyMotor Grader Controls,
Cable Control and WinchLoader Lift Arm and
Excavator ImplementImplements, Frame,
Hitch and Suspension

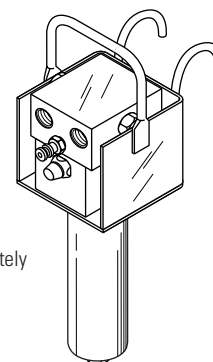
225-3114 Kidney Loop Group

SMCS Code: 5050, 5095

Model: 301.5 (3YW), 301.6 (BDH), 301.8 (BFA), 302.5 (4AZ), 303 (DMA), 303.5 (AFW), 304.5 (ANR), 305 (DSA) Mini Hydraulic Excavators; All Skid Steer Loaders, and All Small Wheel Loaders

Warranty: Six Months

- Used to kidney loop filter a hydraulic system or filter hydraulic oil returning from detachable work tools
- Hoses attach to a rectifier head which allows input flow from either 26.98 mm (1¹/₁₆ in) O-ring ports
- Handle for easier carrying; hooks allow filter group to be hung on machine near work area
- Comes with 225-3116 Filter Element (3 micron) — optional 225-3115 Filter Element (6-micron) can be purchased separately
- Dirty filter indicator shows when to change element
- Optional components enable filtering for specific machines (refer to charts)



301.8 (BFA) and 302.5 (4AZ) Mini Hydraulic Excavator		
Part No.	Description	Qty.
225-3114	Filter Housing	1
165-0018	XT-3 ES Bulk Hose 15.9 mm (-10) ID	305 cm (10 ft)
221-0575	Permanent Hose Coupling	4
030-8190	Adapter (-12 to -10)	2
3D-2824	O-ring (-12)	2
6V-4362	Adapter (-10 to -6)	2
3J-1907	O-ring (-6)	2
152-8181	Male Coupler	1
—	Female Coupler	1

301.5 (3YW), 301.6 (BDH), and 303.5 (AFW) Mini Hydraulic Excavator		
Part No.	Description	Qty.
225-3114	Filter Housing	1
165-0018	XT-3 ES Bulk Hose 15.9 mm (-10) ID	305 cm (10 ft)
221-0575	Permanent Hose Coupling	4
030-8190	Adapter (-12 to -10)	2
3D-2824	O-ring (-12)	2
—	Adapter (-10 to -8)	2
3K-0360	O-ring (-8)	2
—	Male Coupler	1
—	Female Coupler	1

Weight of filter unit	15.88 kg (35 lb)
Maximum working pressure rating	31,716 kPa (4,600 PSI)
Maximum flow rating	151.4 lpm (40 gpm)
Collapse pressure rating	20,995 kPa (3,045 PSI)
Dirty filter rating	517 kPa (75 PSI)

303 (DMA), 304.5 (ANR), 305 (DSA, 3YS), Mini Hydraulic Excavator;
All Skid Steer Loaders, and All Small Wheel Loaders

Part No.	Description	Qty.
225-3114	Filter Housing	1
165-0018	XT-3 ES Bulk Hose 15.9 mm (-10) ID	305 cm (10 ft)
221-0575	Permanent Hose Coupling	4
030-8190	Adapter (-12 to -10)	2
3D-2824	O-ring (-12)	2
9M-4584	Adapter (-10 to -10)	2
2M-9780	O-ring (-10)	2
—	Male Coupler	1
—	Female Coupler	1

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Hydraulic Tank Adapters

SMCS Code: 5050, 5095

Model: All 311 through 375 Hydraulic Excavators

Essential Tool

Warranty: Six Months

- Used to connect oil filter cart to hydraulic tank on excavator
- Used with 188-3242 Oil Filter Cart
- Provides a quick-disconnect feature to quickly hook up filter cart
- Suction and return stand pipes are easily adjusted depending on depth of hydraulic tank
- For more efficient operation, permanently install 198-1053 Cover Assembly on each 345 and 365 Excavator

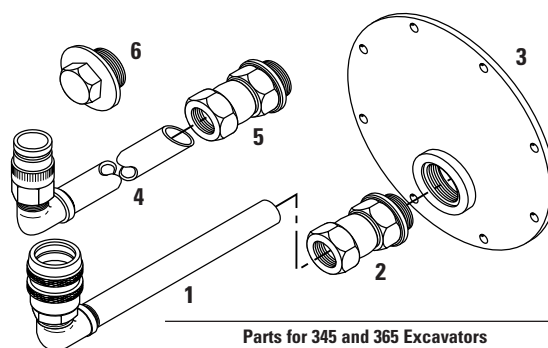
Reference

NEHS0778, Tool Operating Manual, 188-3242 Filter Cart Group
(Used on Hydraulic Tanks or Hydraulic Systems)

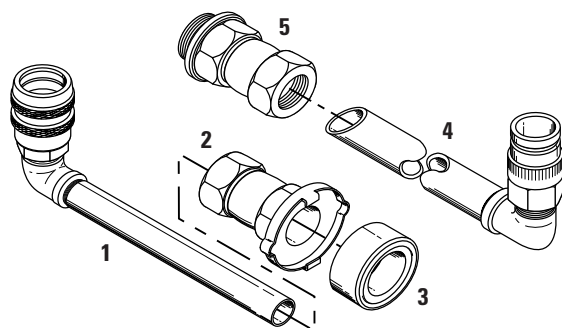
SEBF8446, Procedure for Filtering 300 Series Excavator Hydraulic Oil

SEBF8447, Procedure for Filtering Excavator (311-375) Hydraulic Oil

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.



Parts for 345 and 365 Excavators		
Item	Part No.	Description
1	198-8796	Return Line Group
2	198-1052	Adapter Assembly (return)
3	198-1053	Cover Assembly (return)
4	198-8795	Suction Line Group
5	198-1052	Adapter Assembly (suction)
6	—	Plug



Parts for 311 through 375 Excavators (excluding 345 and 365)		
Item	Part No.	Description
1	198-8796	Return Line Group
2	198-1051	Adapter Assembly (return)
3	199-1003	Seal Assembly (return)
4	198-8795	Suction Line Group
5	198-1052	Adapter Assembly (suction)

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

228-6507 Adapter Assembly

SMCS Code: 3217, 5050, 5056, 5068, 5095

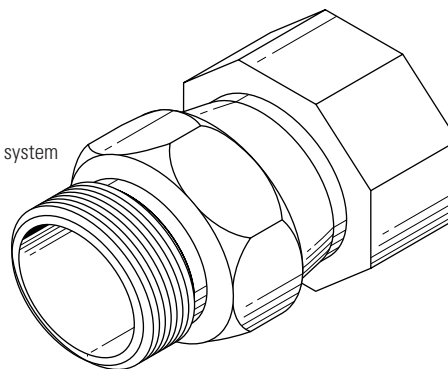
Model: Forwarders

Warranty: Six Months

- Used to connect machine to filter cart for kidney loop cleaning of hydraulic system
- Used with 5P-7701 or 7M-8485 O-ring
- Provides easy, clean connection to hydraulic tank (helps to meet Contamination Control Initiative)
- Made of durable steel with rubber locking mechanism (allows tube to be locked in desired location)
- See reference manual for additional parts required for procedure

Reference

SEBF8788, Procedure for Kidney Looping Forwarder Hydraulic Oil



Tank connecting thread	SAE 1 $\frac{1}{16}$ -12
Tube size	$\frac{3}{4}$ in ID pipe
Overall length	63.4 mm (2.50in)

Hydraulic Tank Adapters for 554 and 574B Forwarders

SMCS Code: 5050, 8095

Model: 554 and 574B Forwarders

Essential Tool

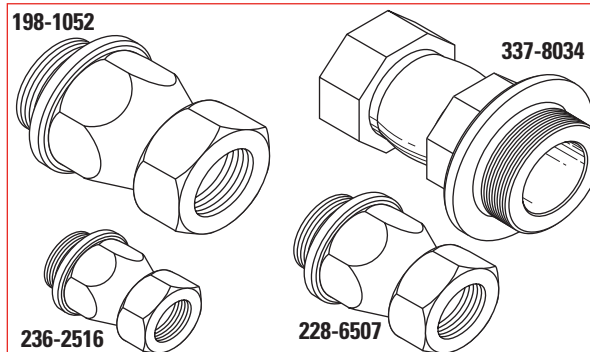
Warranty: Six Months

- Used to connect oil filter cart or kidney loop cart to hydraulic tank
- Used with 204-7392 Kidney Loop Cart (Air Motor Driven), CE
- Provides a quick-disconnect feature to quickly hook up filter cart
- Suction and return stand pipes are easily adjusted depending on depth of hydraulic tank
- Another adapter is listed in the table which works on any hydraulic tank with correct thread specifications

References

NEHS0848, Tool Operating Manual, 204-7392 (Air Motor Driven) Filter Cart (Use on All Caterpillar Products)

SEBF8788, Contamination Control Guideline, Procedure for Kidney Looping Forwarder Power Train and Hydraulic Oil



Part No.	Description	Model	ID of Sch 40 Black Pipe	Threads	Replaceable O-ring
236-2516	Adapter Assembly	574B	$\frac{1}{2}$ in	1 $\frac{1}{16}$ -12	3D-2824
228-6507	Adapter Assembly	554	$\frac{3}{4}$ in	1 $\frac{1}{16}$ -12	7M-8485
198-1052	Adapter Assembly		1 in	M42 x 2	095-1608
337-8034	Adapter Assembly	—	1 in	M52 x 2	095-1610

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Adapters and Extensions

SMCS Code: 5068-010

Model: All Models with hydraulic tanks having 2 or 4 inch filler caps

Recommended Tool

Warranty: Six Months

- Used to filter oil directly from hydraulic tank (eliminates placing oil in separate filtering cart/container)
- In tight places the extensions will extend the adapters for easy access
- Used with 188-3242 Filter Cart Group
- Easy-to-use; simply remove filler cap and screen, and then screw adapter onto neck of filler tube
- 2 adapters (1 for 50.8 mm [2 in] and 1 for 101.6 mm [4 in] hydraulic tank filler necks)
- Designed with quick disconnect fittings for quick hookup of hoses from filter cart (designed to prevent incorrect hookup)
- Oil is removed and replaced through adapter into tank's filler hole
- Uses an S-O-S fitting to release pressure buildup prior to removing adapter assembly (in some cases as oil heats up inside hydraulic tank, pressure can build up, resulting in possible hot oil spray, if pressure is not released before adapter is removed)
- Made from lightweight aluminum for easier handling and steel fittings for added durability
- Requires dealer supplied length of 25.4 mm (1 in) ID suction hose (hose length should allow end of hose to be within 15.24 cm [6 in] from bottom of tank) and S-O-S Sampling Adapter
- Overall size (W x L x H): 12.7 x 15.2 x 38.1 cm (5 x 6 x 15 in)

Reference

NEHS0778, Using the 188-3242 Filter Cart Group



Part No.	Description	Weight
193-5900	Adapter	5 kg (11 lb)
193-5903	Adapter	4 kg (9 lb)
197-4626	Extension	1.58 kg (3.5 lb)
197-4627	Extension	0.68 kg (1.5 lb)

173-8839 Fluid Recovery Unit

SMCS Code: 5050-044, 5050-022, 5056-022

Model: All Models

Warranty: Six Months

European Union compliant, CE marked

- Designed to reduce time and trouble associated with the handling and filtration of contaminated petroleum-based fluids and water glycol
- Sized to handle most hydraulic, transmission, crankcase or cooling system filtering/handling jobs on construction equipment
- Efficient — everything is there! No extra pans, drop cords, hoses, buckets or barrels are needed; short term fluid storage is no longer a messy problem
- Portable — operates on shop or portable air systems; easily moved by 1 person when full; fold-away tow bar is standard
- Easily operated — 3 quick operating ball valves change operation of unit from vacuum to discharge to recycling — easily changed spin-on filters are used throughout
- Economical — eliminates time consuming handling and disposal of seemingly contaminated fluids; eliminates the purchase of new fluids in many cases; decreases disposal and permit expenses
- Safe operation — tank safety relief valve and wheel locking device are standard
- Compact — storage and job accessibility is no problem due to the compact design of the unit
- Environmentally safe — although it will not turn “bad” fluids into “new” fluid, it will convert contaminated fluids into clean, ready-to-use fluids; this eliminates hazardous waste and landfill problems
- Air supply — requires 65 to 80 PSI shop compressed air
- Pump unit — vacuum 60.6 to 68.1 lpm (16 to 18 gpm); discharge 60.3 lpm (16 gpm)
- Easy to clean — large 20.32 x 25.4 cm (8 x 10 in) cleanout door allows cleaning of unit
- Tank unit — 567.8 L (150 gal) holding tank is mounted on rubber tired wheels and caster; completely portable with a fold away towing bar
- Hoses — 31.75 mm x 6.10 m (1¼ in x 20 ft) clear industrial suction hose is lightweight and flexible; equipped with a quick 25.4 mm x 3.66 m (1 in x 12 ft) black discharge hose with quick coupling and fluid shutoff fill nozzle (standard)
- Drain pan — lightweight aluminum, 469.9 x 520.7 x 76.2 mm (18½ x 20½ x 3 in) drain pan; equipped with quick coupling connection; steel ball type rollers permit rolling on floor; low profile gets where other pans cannot
- Filtration — serviceman has the option of filtering fluids three separate times (three filters: suction, recycle and discharge; all have visual “dirty filter” indicators)
 1. When fluid is initially being vacuumed from the sump or pan to the unit; the fluid passes into the tank through dual filters at a rate of 60.6 to 68.1 lpm (16 to 18 gpm).
 2. While the fluid is in the holding tank it can be continually circulated through the dual recycle filters until the acceptable contamination level is attained.
 3. When fluid is being pumped back into the vehicle, it goes through yet another set of dual discharge filters at a rate of 60.6 lpm (16 gpm).



Replacement Filters

Part No.	Description
Standard	
9U-6985	Suction Filter Element, 100-mesh, stainless steel media, spin-on
9U-5870	Recirculating and Discharge Filter Element, 13-micron absolute, synthetic media, spin-on
Optional	
9U-6983	Replacement Filter, 5-micron absolute
9U-6984	Replacement Filter, 22-micron absolute

All spin-on filters listed have synthetic filtering media for compatibility with petroleum-based and water-based fluids.

Reference

NEHS0648, Tool Operating Manual

231-6284 Filter Cart Group

SMCS Code: 3004, 3258, 3282, 3260, 4050, 4070

Model: All Caterpillar products

Warranty: Six Months

- Used to flush and clean final drive, rear axle, differential, small hydraulic tanks, and/or hydraulic systems with less than 110 L (30 gal) capacity; can also be used in any filtering application for oil contamination control
- Allows oil filtering directly from hydraulic tank — eliminates placing oil in separate filtering cart/container
- Filters hydraulic fluids from 5W to 90W
- Easily moved around in field conditions on two 30 cm (12 in) pneumatic tires
- Oil is pumped through the filter cart using an air-powered, diaphragm pump
- Maximum output pressure of fluid being pumped is equal to air inlet air pressure
- A dirty filter indicator indicates when to change filter elements
- Protective rails help prevent damage during transportation
- A 161-7059 Diaphragm Repair Kit and a 196-9504 Air Valve Repair Kit are sold separately

References

SEBF8797, Procedure for Filtering Final Drives, Rear Axles, and Differentials on Caterpillar Machines

NEHS0899, Tool Operating Manual, Using the 231-6284 30 Gallon Filter Cart



Capacity	114 L (30 gal)
Maximum free flow	159 lpm (42 gpm)
Maximum size of pumpable solids	3.0 mm (0.12 in)
Air inlet	12.7 mm (0.5 in)
Recommended operating pressure	414 kPa (60 PSI)
Maximum air pressure	827 kPa (120 PSI)
Minimum air pressure	138 kPa (20 PSI)
Overall size (H x D x W)	953.0 x 762.0 x 673.0 mm (37.5 x 30.0 x 26.5 in)
Weight	82.6 kg (182 lb)

292-8713 Diesel Fuel Flushing Cart

Model: All Caterpillar products

Warranty: Six Months

- Used to flush and clean diesel fuel systems; with an additional quick disconnect added to the cart it can be used to filter fuel tanks
- Easily moved around in field conditions on two 30 cm (12.0 in) pneumatic tires
- Oil is pumped through the filter cart using an air-powered, diaphragm pump
- Maximum output pressure of fluid being pumped is equal to air inlet air pressure
- A dirty filter indicator indicates when to change filter elements
- Protective rails help prevent damage during transportation
- A 161-7059 Diaphragm Repair Kit and a 196-9504 Air Valve Repair Kit are sold separately

Reference

NEHS0969, Tool Operating Manual



Capacity	114 L (30 gal)
Maximum free flow	159 lpm (42 gpm)
Maximum size of pumpable solids	3.0 mm (0.12 in)
Air inlet	12.7 mm (0.50 in)
Recommended operating pressure	137 - 276 kPa (20 - 40 PSI)
Maximum air pressure	310 kPa (45 PSI)
Minimum air pressure	138 kPa (20 PSI)
Overall size (H x D x W)	953.0 x 762.0 x 673.0 mm (37.5 x 30.0 x 26.5 in)
Weight	89.4 kg (197 lb)

Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

Implements, Frame, Hitch and Suspension

Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and AssemblyMotor Grader Controls,
Cable Control and WinchLoader Lift Arm and
Excavator ImplementImplements, Frame,
Hitch and Suspension

295-5490 Filter Cart Group

SMCS Code: 0684

Model: Diesel Fuel Engines

Essential Tool

Warranty: Six Months

European Union Compliant, CE marked

NEW TOOL

- Used to clean diesel fuel systems by removing contaminants in fuel
- Lightweight, portable design for easy transport to work site
- Use before engine re-start, or after replacement of a failed fuel system component
- Kidney loop fuel through filter element, reservoir tank, and engine fuel system until desired level of cleanliness is achieved
- Air powered diaphragm pump for dependable pumping action
- Dirty filter indicator shows when filter elements require service
- Includes basic suction/return hose and discharge/pressure hose assemblies (additional dealer-supplied adapters are required)

Reference

NEHS0989, Tool Operating Manual, 295-5490 Portable Diesel Fuel System Filtration Unit

Service/Repair Parts		
Item	Part No.	Description
1	295-5589 ¹	Pump
3	295-8468	Dust Cap
2	295-8469	Dust Cap
Not Shown		
	295-5590	Air Repair Kit
	295-5591	Diaphragm Repair Kit

¹ Not serviced

***This article has changed
since the printing of the 2009
Dealer Service Tools Catalog.***

Air diaphragm pump (operating pressure range)	138 to 414 kPa (20 to 60 PSI)
Pressure air relief valve	483 kPa (70.0 PSI)
Maximum output pressure	Pressure of the fluid pumped should be equal to the air inlet pressure
Tank capacity	18.9 L (5.0 gal)
Fluid cycle	0.57 lpm (0.15 gpm)
S-O-S valve	Standard
Operating temperature	4.4° to 65.5°C (40° to 150°F)
Noise level	78 dB at 483 kPa (70 PSI) air pressure
Overall dimensions (W x D x H)	365.0 x 466.0 x 535.0 mm (14.37 x 18.35 x 21.06 in)
Ground strap length	305 cm (10 ft)
Suction/return hose length	427 cm (14 ft)
Discharge/pressure hose length	671 cm (22 ft)
Weight	13.6 kg (30 lb)



245-1769 Heavy Weight Oil Filter Cart

SMCS Code: 0680

Model: Hydraulic Systems on 785, 789, 793

Off-Highway Trucks and Power Train Oils

Warranty: Six Months

European Union compliant, CE marked

- Replaces discontinued 201-8131 and discontinued 183-9301 Carts
- Used to filter fluids from 5W (lightweight oils) to 90W (final drive lubricants)
- Variable pump delivery
- Powered by compressed air
- A differential pressure gauge is provided to monitor filter element condition
- Extra large capacity filter for extended time between dirty element change
- Wire-reinforced hoses; will not collapse with "hot" oil
- Built-in tool box
- Convenient hose caddy for ease of storage
- Mobile cart on hard plastic casters

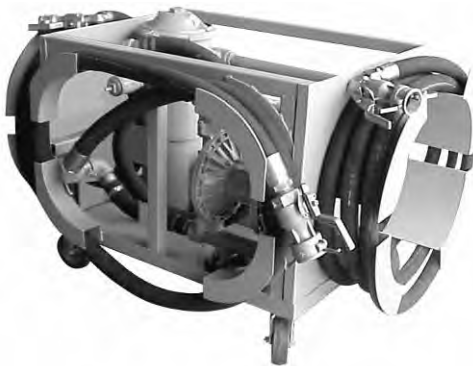
Reference

NEHS0847, Tool Operating Manual

***This article has changed
since the printing of the 2009
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Prime mover	Air diaphragm pump
Operating pressure	138 - 689 kPa (20 - 100 PSI)
Variable delivery	0 - 340 lpm (0 - 90 gpm)
Supply air consumption	0.47 liter/s (1 cfm) per 3.78 liter/m (1 gpm) of fluid pumped
Maximum output pressure of fluid being pumped equals	Air inlet pressure
Hydraulic fluids	5W to 90W
Operating temperature	0° to 66°C (0° to 150°F)
Standard filtration	10-micron, absolute
Extra large filter	27.3 cm diameter x 82.5 cm (10.7 in diameter x 32.5 in)
Outlet hoses	Two #844, 38.1 mm (1½ in) diameter x (25 ft) long (1½ in Cam-lok fittings)
Inlet hose	#844, 50.8 mm (2 in) diameter x 4.27 m (14 ft) long (1½ in Cam-lok fittings)
Tool box	40.6 x 25.4 x 22.8 cm (16 x 10 x 9 in)
Overall dimensions	122 x 157 x 102 cm (48 x 62 x 40 in)
Noise level	82dB (at 110 PSI air pressure)
Weight	318 kg (700 lb)

Performance Note: Fluid flow through filter for maximum efficiency is dependent upon fluid temperature, fluid viscosity, supply air pressure, supply air volume, and filter media rating.



Service/Repair Parts	
Part No.	Description
192-1560	Filter Element (10-micron, absolute)
212-7125	Filter Element (3-micron, absolute)
188-7020	Filter Element (5-micron, absolute)
185-1375	Filter Element (25-micron, absolute)
4C-6786	Pump (complete)
196-9504	Air Valve Repair Kit
161-7059	Diaphragm Repair Kit
077-8298	Filter Housing Cap O-ring for discontinued 201-8131 only
221-4490	Cup Seal (inside filter housing) for discontinued 201-8131 only
209-1799	Pump (discontinued 183-9301 only)
209-1800	Repair Kit, diaphragm for pump on discontinued 183-9301
209-1801	Repair Kit, air valve for pump on discontinued 183-9301
3H-0976	O-ring (Element to Head)

Dust Caps/Plugs Used with 245-1769 and discontinued 201-8131 and discontinued 183-9301 Oil Filter Carts	
8C-3451	12.7 mm (1/2 in) diameter rubber cap for S-O-S port
201-8129	50.8 mm (2 in) diameter aluminum male plug used with 190-8321 Quick Disconnect Coupler or return line
201-8128	63.5 mm (2 1/2 in) diameter aluminum male plug used with 190-8321 Quick Disconnect Coupler or suction line
201-8553	50.8 mm (2 in) diameter aluminum female cap used with the following adapters: 190-9935, 190-9937, 190-9939, 190-9941, or 190-9943
201-8552	63.5 mm (2 1/2 in) diameter aluminum female cap used with the following adapters: 190-9936, 190-9938, 190-9940, 190-9942, or 190-9944

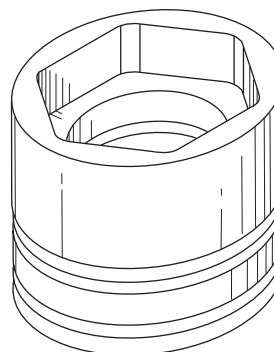
This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

FT3102 Modified Socket

SMCS Code: 5362
Model: 15B, 20B, and 22B Grapple
Essential Tool
Warranty: None

NEW TOOL

- Used to assemble 144-1055 Adapter onto distributor assembly
- Used with 1/2 inch drive extension and/or square drive socket wrench
- Make from 214-6513 Socket, 1 1/16 inch
- Modify by removing 9 mm (0.35 in) from socket end (total length; 37 mm [1.45 in])

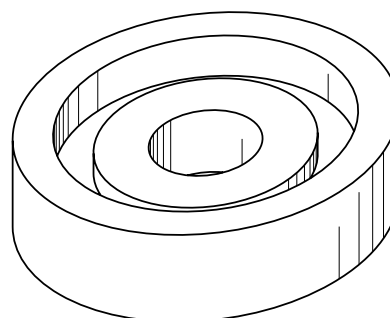


Hydraulic Component Disassembly and Assembly

FT2802 Puller Plate

SMCS Code: 5100-011
Model: All machines with spherical bearings
Warranty: None

- Used to remove spherical bearings from excavator boom, stick, and bucket cylinders or bulldozer tilt cylinder bearings from track-type tractors
- Used with 1P-0820 Puller Group, 2J-3507 Nut, 3K-5234 Washer, and suitable hydraulic pump
- Designed to apply all of force to bearing outer race
- Custom made to fit specific applications (dimensions provide tolerances that can be applied to specific bearing and bore diameters)
- Requires two puller plates for bearing removal
- Material: SAE1020 steel



Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

Implements, Frame, Hitch and Suspension

Fabricated Plates for Removal of Spherical Bearings from Hydraulic Cylinders

SMCS Code: 5100-011

Model: Most Caterpillar Excavators and Track-Type Tractors

Warranty: None

- Used in removal of spherical bearings used in excavator boom, stick and bucket cylinders, and in track-type tractor bulldozer tilt cylinders
- Design permits all of force to be applied against bearing race
- Made from SAE 1020 Steel according to Figure 1; dimensions given in chart along with part number of bearing they are used on
- Necessary to make 2 spacer blocks for removal of bearings
- Blocks fabricated from steel according to Figure 2
- Blocks used in different positions for different applications
- 1P-0820 Puller Group, 2J-3507 Nut, 3K-5234 Washer, and suitable hydraulic pump also needed

Puller Plate Dimensions						
Bearing Part No.	A	B	C	D	E	F
106-4550	177.8 mm (7.00 in)	247.6 mm (9.75 in)	287.3 mm (11.312 in)	38.1 mm (1.50 in)	28.6 mm (1.125 in)	
3G-3320	50.8 mm (2.00 in)	69.8 mm (2.75 in)	87.4 mm (3.44 in)	25.4 mm (1.00 in)	12.7 mm (0.50 in)	6.3 mm (0.25 in)
3G-3521	111.2 mm (4.38 in)	152.4 mm (6.00 in)	177.8 mm (7.00 in)	31.7 mm (1.25 in)	15.7 mm (0.62 in)	6.3 mm (0.25 in)
3G-5337	98.6 mm (3.88 in)	127.0 mm (5.00 in)	152.4 mm (6.00 in)	25.4 mm (1.00 in)	7.9 mm (0.31 in)	
6I-8830	139.7 mm (5.50 in)	203.2 mm (8.00 in)	228.6 mm (9.00 in)	31.8 mm (1.25 in)	26.9 mm (1.06 in)	
4J-4981	68.3 mm (2.69 in)	88.9 mm (3.50 in)	98.6 mm (3.88 in)	19.1 mm (0.75 in)	6.3 mm (0.25 in)	
5J-6424	74.7 mm (2.94 in)	95.3 mm (3.75 in)	112.8 mm (4.44 in)	19.1 mm (0.75 in)	6.3 mm (0.25 in)	
5J-9451	79.2 mm (3.12 in)	106.4 mm (4.19 in)	127.0 mm (5.00 in)	19.1 mm (0.75 in)	9.7 mm (0.38 in)	
6J-5383	60.5 mm (2.38 in)	74.7 mm (2.94 in)	87.4 mm (3.44 in)	19.1 mm (0.75 in)	6.3 mm (0.25 in)	
7J-3216	66.5 mm (2.62 in)	87.4 mm (3.44 in)	101.6 mm (4.00 in)	19.1 mm (0.75 in)	6.3 mm (0.25 in)	
7J-3297	66.5 mm (2.62 in)	104.6 mm (4.12 in)	127.0 mm (5.00 in)	25.4 mm (1.00 in)	12.7 mm (0.50 in)	6.3 mm (0.25 in)
8J-3783	111.3 mm (4.38 in)	136.7 mm (5.38 in)	158.8 mm (6.25 in)	28.4 mm (1.12 in)	14.2 mm (0.56 in)	6.3 mm (0.25 in)
8J-4382	124.0 mm (4.88 in)	165.1 mm (6.50 in)	196.9 mm (7.75 in)	31.8 mm (1.25 in)	15.7 mm (0.62 in)	6.3 mm (0.25 in)
8J-4411	74.7 mm (2.94 in)	104.6 mm (4.12 in)	125.5 mm (4.94 in)	25.4 mm (1.00 in)	12.7 mm (0.50 in)	6.3 mm (0.25 in)
8J-4585	85.9 mm (3.38 in)	120.7 mm (4.75 in)	139.7 mm (5.50 in)	25.4 mm (1.00 in)	12.7 mm (0.50 in)	6.3 mm (0.25 in)
8J-6861	68.3 mm (2.69 in)	95.4 mm (3.75 in)	114.3 mm (4.50 in)	25.4 mm (1.00 in)	11.2 mm (0.44 in)	6.3 mm (0.25 in)
8J-7978	85.9 mm (3.38 in)	108.0 mm (4.25 in)	127.0 mm (5.00 in)	19.1 mm (0.75 in)	6.3 mm (0.25 in)	
8J-8906	79.2 mm (3.12 in)	127.0 mm (5.00 in)	152.4 mm (6.00 in)	28.4 mm (1.12 in)	14.2 mm (0.56 in)	6.3 mm (0.25 in)
9J-3206	60.5 mm (2.38 in)	79.2 mm (3.12 in)	98.6 mm (3.88 in)	19.1 mm (0.75 in)	6.3 mm (0.25 in)	
5P-7802	66.5 mm (2.62 in)	87.4 mm (3.44 in)	101.6 mm (4.00 in)	19.1 mm (0.75 in)	6.3 mm (0.25 in)	
6T-8830	139.7 mm (5.5 in)	203.2 mm (8.00 in)	228.6 mm (9.00 in)	31.8 mm (1.25 in)	26.9 mm (1.06 in)	
1U-2729	85.9 mm (3.38 in)	120.7 mm (4.75 in)	139.7 mm (5.50 in)	25.4 mm (1.00 in)	12.7 mm (0.50 in)	6.3 mm (0.25 in)
1U-3988	85.9 mm (3.38 in)	108.0 mm (4.25 in)	149.4 mm (5.88 in)	19.1 mm (0.75 in)	6.3 mm (0.25 in)	
9U-9559	77.7 mm (3.06 in)	120.6 mm (4.75 in)	127.0 mm (5.00 in)	19.1 mm (0.75 in)	13.2 mm (0.52 in)	
9U-9560	117.5 mm (4.63 in)	182.5 mm (7.19 in)	206.4 mm (8.13 in)	31.8 mm (1.25 in)	23.8 mm (0.94 in)	
9U-9561	157.1 mm (6.19 in)	236.5 mm (9.31 in)	257.2 mm (10.13 in)	38.1 mm (1.50 in)	28.6 mm (1.13 in)	
6V-3340	66.5 mm (2.62 in)	104.6 mm (4.12 in)	127.0 mm (5.00 in)	25.4 mm (1.00 in)	12.7 mm (0.50 in)	6.3 mm (0.25 in)

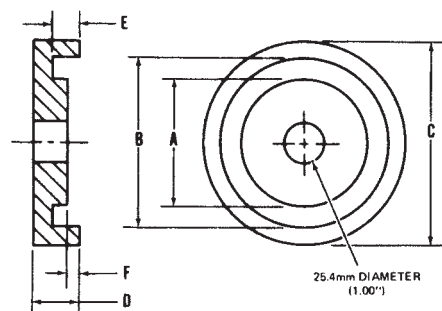


Fig. 1 — Dimensions to Fabricate Plates

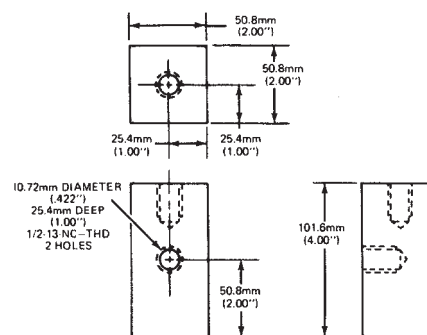


Fig. 2 — Dimensions to Fabricate Blocks

If the part number for a bearing is not in the chart, use the following dimensions to make a puller plate:

- Diameter of hole in center of plate: 25.4 mm (1.0 in)
- Diameter A: 1.5 mm (0.06 in) smaller than diameter of bore of bearing to be removed
- Diameter B: 1.5 to 3.0 mm (0.06 to 0.12 in) larger than outside diameter of ball
- Diameter C: 1.5 to 3.0 mm (0.06 to 0.12 in) smaller than outside diameter of outside race
- Diameter D: 19.0 to 28.4 mm (0.75 to 1.12 in)
- Diameter E: 0.8 mm (0.03 in) more than distance that ball extends beyond outside of bearing race
- Diameter F: must be small enough to permit diameter A to be used as pilot in bore of ball

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

FT3076 Hose Assembly

SMCS Code: 5050-038

Model: 248B, 268B, 246C, 256C, 262C, 272C, 277C, 287C, and 297C Skid Steer Loaders

Essential Tool

Warranty: None

NEW TOOL

- Used to test and adjust high-flow, hydraulic systems
- Used on both B and C-Series models

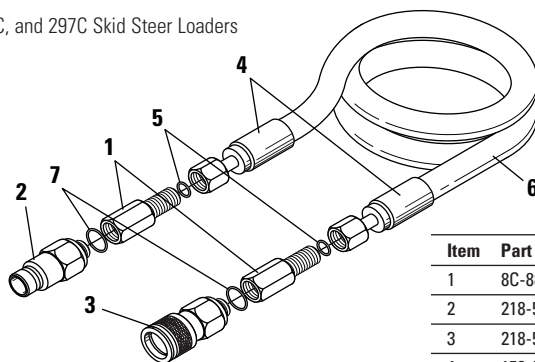
References

REN8747, Service Manual (248B, 268B)

KEN5113, Service Manual (246C, 256C, 262C, 272C)

KEN5196, Service Manual (277C, 287C, 297C)

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.



Item	Part No.	Description
1	8C-8835	Bulkhead Adapter
2	218-5843	Nipple
3	218-5845	Coupler
4	153-0785	Coupling Assembly
5	6V-8397	O-ring Seal
6	161-1815 ¹	Hose, 152 cm (60 in)
7	3K-0360	O-ring

¹ Not serviced

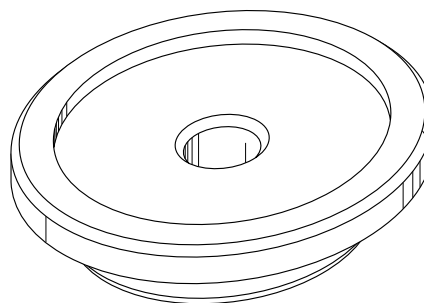
FT1395 Adapter Plate

SMCS Code: 6116-012, 6116-011, 4151-015, 4158-011, 4151-017, 6072-017, 5102-015, 5102-016

Model: 992C

Warranty: None

- Used to secure lift cylinder and excavator cylinder rods, having spherical bearings, to end post of 1P-1784 and 1P-2330 Hydraulic Cylinder Repair Stands
- Counterbored side of adapters used for excavator cylinder rods having spherical bearings; side with step diameter used for 992C lift cylinder rods
- 2 required
- Material: SAE 1020 steel



9U-5919 Spanner Tool

9U-5920 Sleeve

SMCS Code: 5104-017

Model: 994 Wheel Loaders

Warranty: Six Months

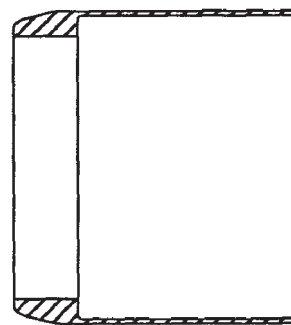
9U-5919 Spanner Tool

- Used to disassemble and assemble 6E-0512 and 101-9571 Threaded Piston in 9T-9021, 9T-9022, 9T-9024, and 9T-9025 Tilt Cylinder Groups
- Used with torque wrench
- Plastic ID of spanner to prevent damage to cylinder rod threads during use
- Enables required piston assembly torque of 816 N-m (600 ft-lb) to be achieved (not possible with conventional spanner tools)
- Use of any other tool can result in damage to piston or rod, and result in improper assembly
- Provides positive, non-slip engagement of spanner pins



9U-5919

9U-5919 Spanner Tool	
Construction	Steel
Outside diameter	203 mm (8 in)
Inside diameter	114.0 mm (4.5 in)
Length	152 mm (6 in)
Weight	15 kg (33 lb)
Square drive	1 in



9U-5920

9U-5920 Sleeve	
For use with	
Cylinder rod diameter	138.7 mm (5.5 in)
Cylinder rod thread size	136.5 mm (5.375 in)

9U-5920 Sleeve

- Used to protect cylinder head seals during assembly of head onto rod (without protection, seals will likely be cut or damaged)
- Used on rods with 139.7 mm (5.5 in) diameter and 5 $\frac{3}{8}$ -12 inch thread

129-4542 Cylinder Spanner Wrench

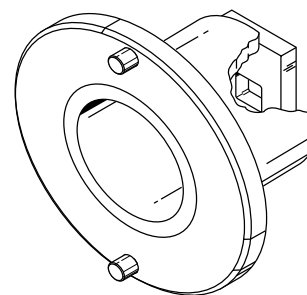
SMCS Code: 5104-016, 5104-017

Model: 990 Wheel Loader

Warranty: Six Months

- Used to disassemble and assemble 6E-1169 Threaded Piston in 9T-9570 Tilt Cylinder Group
- Used with 1 inch square drive torque wrench
- Enables piston assembly to be tightened to 800 N·m (592 ft-lb)
- Provides positive, non-slip engagement of spanner pins
- Use of other tools can result in damage to piston or rod causing improper assembly

Pin diameter	15.88 mm (0.625 in)
Distance between pins	204 mm (8.03 in)
Inside diameter	105 mm (4.1 in)
Length	157 mm (6.2 in)
Weight	14 kg (31 lb)
Square drive	1 in
Material	Steel



Piston Spanner Assemblies

SMCS Code: 7201-017, 4303-017

Model: D25C and D, D30C and D, D35C and HP, D40D, D44B, D250B, D300B and D, D350C and D, D400, D400D, D550B Articulated Trucks

Warranty: Six Months

- Used to remove and install pistons on cylinder rods
- Used with 3/4 inch square drive torque wrench, ratchet, or breaker bar
- Quick and easy assembly and disassembly
- Maintains positive engagement and eliminates damage to rod surface
- Saves part replacement costs by eliminating damage by destructive methods such as cutting torch or welding

9U-6110 and 9U-6111 Spanner Wrenches

- Used to remove and install threaded pistons in 6U-3247 and 5U-6864 Suspension Cylinders
- Pins inside of tool provide positive non-slip engagement during torquing (using standard adjustable-type spanner is ineffective and usually results in damaged rod or piston)
- "Tubular" design provides slip fit around piston; 3 set screws also provide assurance wrench will not become disengaged during tightening or loosening

9U-6123 Spanner Wrench

- Used to remove and install threaded pistons in **discontinued** 6U-7243 and **discontinued** 7U-8421 Steering Cylinders
- Fits pistons with spanner holes on "board" side (facing rod eye) — these pistons are very difficult to service with standard adjustable type spanner wrenches
- C-type design fits around cylinder rod and is held in place with cover plate
- Inside surfaces covered with non-metallic covering to protect 50 mm (2.0 in) cylinder rod during rotation
- Spanner pins on each end provide service for 2 different pistons having different spanner requirements (Side A for **discontinued** 7U-8421 Piston and Side B for **discontinued** 6U-7243 Piston)
- When assembled onto cylinder rod, bearing-type design of inside diameter virtually eliminates chance of disengagement

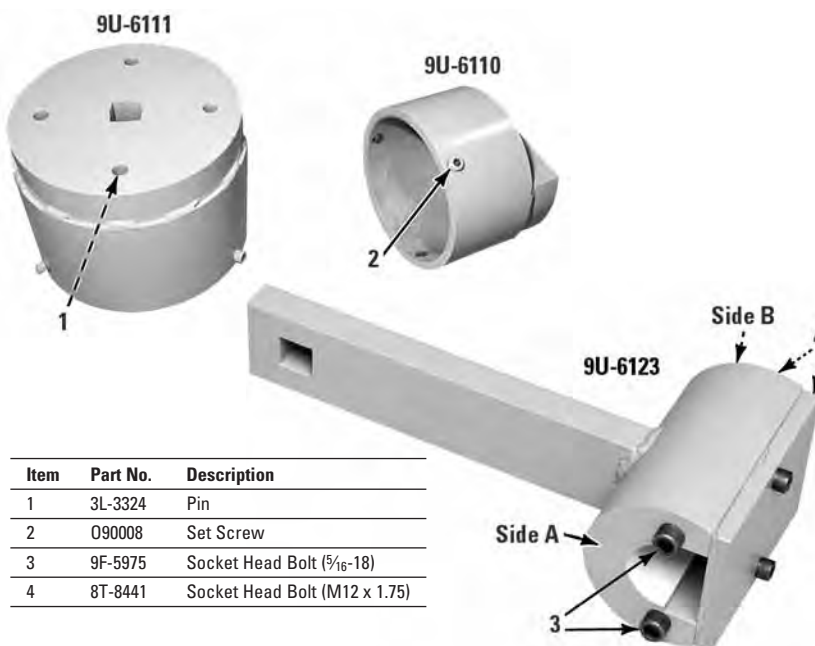
Reference

SENR8220, Service Manual, D300D Vehicle Systems Disassembly and Assembly

Part No.	Description	Inside Diameter	Depth	Width	Length (to end of handle)	Number of Pins	Pin Size	Bolt Circle of Pins	Weight	Square Drive Size
9U-6110	Spanner	101.6 mm (4.00 in)	61 mm (2.4 in)	—	—	2	3L-3324 Pin; 9.50 mm (0.375 in)	72.00 mm (2.834 in)	2 kg (4.5 lb)	3/4 in
9U-6111	Spanner	139.7 mm (5.50 in)	84 mm (3.1 in)	—	—	4	3L-3324 Pin; 9.50 mm (0.375 in)	106.00 mm (4.173 in)	5 kg (11.5 lb)	3/4 in
9U-6123	Spanner	Cylinder rod size, 50.8 mm (2.0 in)	—	152.0 mm (6.0 in)	400.0 mm (15.75 in)	2 per side	9F-5975 (Side A) 12.0 mm (0.47 in) 8T-8441 (Side B) 18.0 mm (0.71 in)	(Side A) 77.0 mm (3.031 in) (Side B) 78.0 mm (3.071 in)	—	—

Spanner Wrench Usage Chart

Spanner Wrench Part	9U-6110	9U-6111	9U-6123
Piston Serviced	6U-3247	5U-6864	—
Type Cylinder	Suspension	Suspension	Steering
Vehicle Models	D250B D35C D25C	D35HP D40D D550B	D25D D250B D30C D30D D300B D300D D35C D35HP D350C D350D D40D D400 D400D

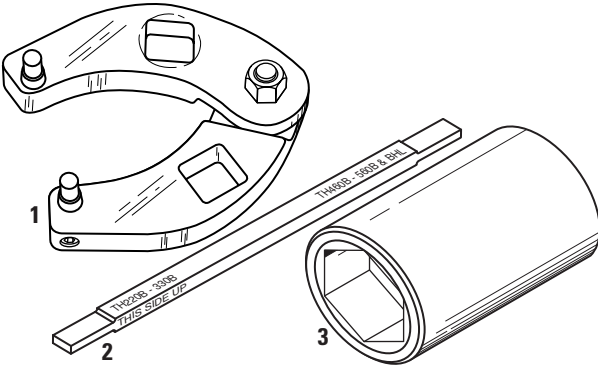


Repair Tools for Backhoes and B-Series Telehandlers

SMCS Code: 5100-017
Model: TH220B, TH330B, TH350B, TH360B, TH460B, TH560B, TH580B, and Backhoe Loader
Essential Tool
Warranty: Six Months

242-0780 Spanner Wrench

- Used to service B-series Telehandlers only
- Used to disassemble and assemble tow hitch cylinder
- Used with a ½ inch square drive ratchet
- Adjustable — fits nut sizes from 50.8 mm (2.0 in) to 152.4 mm (6.0 in)
- Comes with 4 dowels (¼ in, ⅝ in, 4.5 mm, and 5.5 mm) to fit pin holes
- Can be used for any cylinder gland nut



242-0992 Brake Gauge

- Used to service B-series Telehandlers and Backhoe Loaders
- Replaces canceled 208-5524 Brake Gauge
- Used to check brake disk wear and determine whether disk replacement is needed
- Checks for minimum thickness between brake disks
- Gauge is inserted through inspection port in axle housing

242-0779 Socket

- Used to service B-series Telehandlers only
- Used to remove and install tilt cylinder lock valve
- 36 mm deep socket with ½ inch square drive

Item	Part Number	Description
1	242-0780	Spanner Wrench
2	242-0992	Brake Gauge
3	242-0779	Socket

Spanner Sockets for Cylinder Piston-Rod Assembly on Backhoe Loaders

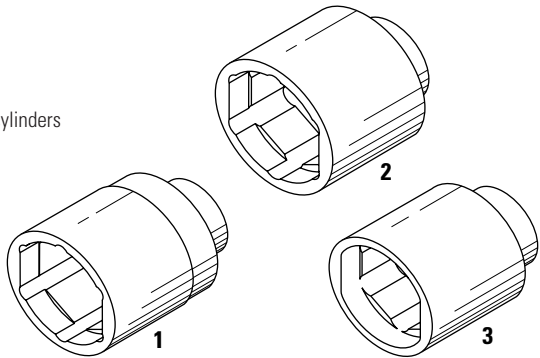
SMCS Code: 5104-017
Model: 416D (BGJ1050-1140 and BFP12900-Up), 420D (BLN10300-UP, BMC1-Up, and MBH1-Up), 430D (BML4800-Up) Backhoe Loaders
Warranty: Six Months

- Used to remove and install piston from rod end on lift cylinders and stabilizer cylinders
- Used with 1 in square drive torque wrench to achieve required torque settings
- Also used with ratchet wrench or breaker bar during disassembly
- Do not use with impact wrench

Reference

REN3585; 416D, 420D, 424D, 428D, 430D, 432D, 438D, 442D Backhoe Loader Machine Systems, Disassembly and Assembly

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.



Item	Part No.	Used On
1	FT3025	228-3505 Lift Cylinder
2	FT3026	228-3500 ¹ Stabilizer Cylinder
3	FT3027	230-0979 Lift Cylinder

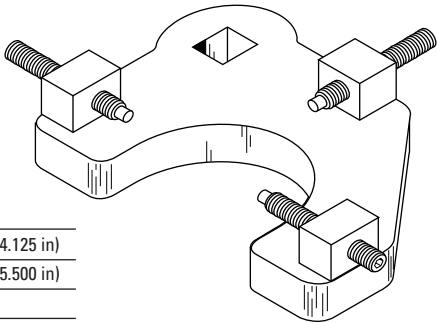
¹ Discontinued

160-0261 Adjustable Cylinder Spanner Wrench

SMCS Code: 5102
Model: Duece
Essential Tool
Warranty: Six Months

- Used to remove threaded glands from hydraulic cylinders
- Used with torque wrench (installation only)
- Adjustable for different diameter heads (must have 4 radial holes on outer diameter)

Minimum gland adjustment	104.78 mm (4.125 in)
Maximum gland adjustment	139.70 mm (5.500 in)
Square drive	¾ in
Maximum installation torque	510 N-m (375 ft-lb)
Setscrew	9X-6405



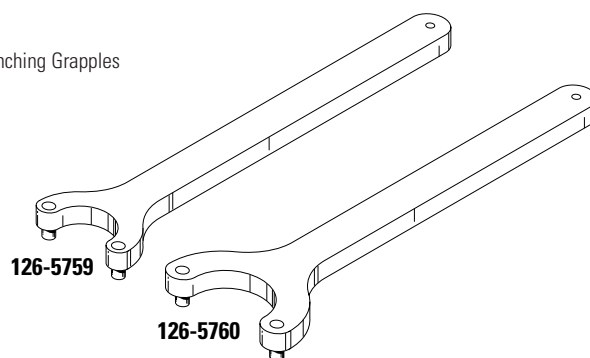
Cylinder Spanner Wrenches

SMCS Code: 5555-017

Model: 525 Log Skidders Equipped with ESCO Series 2000 Sorting and Bunching Grapples

Warranty: Six Months

- Used to disassemble and assemble grapple boom and tong cylinders (1 wrench removes gland from cylinder tube, the other removes piston from rod)
- Gland cylinder wrench is designed to clear cylinder rod guard
- Two 9.6 mm (0.38 in) pins provide positive engagement with gland or piston
- Using other tools to remove glands and piston can cause part damage resulting in increased machine downtime
- Contains HEX for socket to apply specified torque



Part No.	Distance Between Pins	Pin Diameter	Overall Width	Overall Length	Hex Size
126-5759	68.3 mm (2.69 in)	9.6 mm (0.38 in)	93 mm (3.7 in)	406 mm (16.0 in)	1 1/8 in
126-5760	92.2 mm (3.63 in)	9.6 mm (0.38 in)	117 mm (4.6 in)	406 mm (16.0 in)	1 5/16 in

Spanner Wrenches

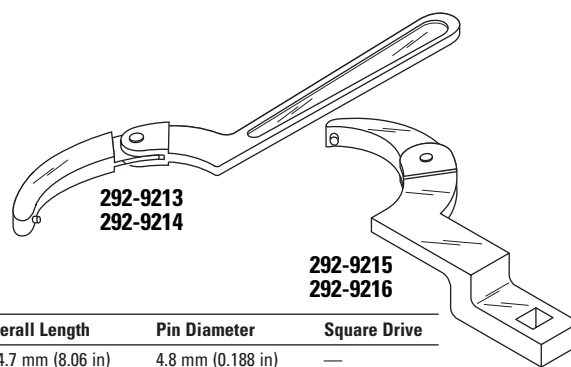
SMCS Code: 7562

Model: 246C (JAY1-UP), 256C (DWS1-UP), 262C (MST1-UP),
272C (RED1-UP) Skid Steer Loader, 277C (JWF1-UP),
287C (MAS1-UP), 297C (GCP1-UP) Multi-Terrain Loader**Essential Tool**

Warranty: Six Months

NEW TOOL

- Used to disassemble and assemble tilt and lift cylinders



Part No.	Description	Capacity	Overall Length	Pin Diameter	Square Drive
292-9213	Spanner Wrench	31.8 - 76.2 mm (1.25 - 3.00 in)	204.7 mm (8.06 in)	4.8 mm (0.188 in)	—
292-9214	Spanner Wrench	50.8 - 120.7 mm (2.00 - 4.75 in)	285.6 mm (11.24 in)	6.0 mm (0.250 in)	—
292-9215	Offset Spanner Wrench	31.8 - 76.2 mm (1.25 - 3.00 in)	135.0 mm (5.31 in)	4.8 mm (0.188 in)	1/2 in
292-9216	Offset Spanner Wrench	50.8 - 120.7 mm (2.00 - 4.75 in)	162.0 mm (6.38 in)	6.0 mm (0.250 in)	1/2 in

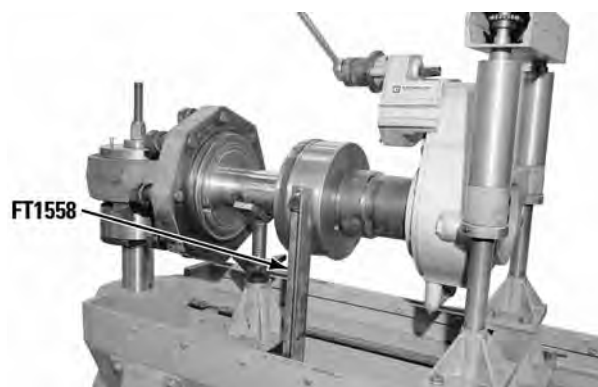
FT1558 Prop

SMCS Code: 5100-011

Model: D10

Warranty: None

- Needed to hold piston when removing rod nut from dozer tilt and ripper lift cylinders
- Material: 50.8 x 50.8 x 6.35 mm (2 x 2 x 1/4 in) angle iron
- Length determined after cylinder is installed on hydraulic cylinder repair stand



Reference

Service Manual

Hydraulic Cylinder Rod Seal Guides

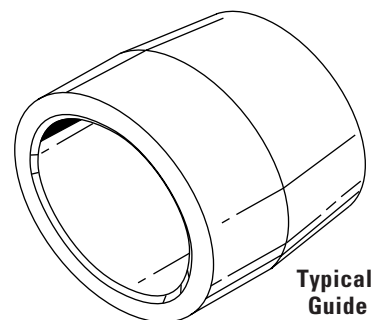
SMCS Code: 5100-012

Model: See Chart

Warranty: Six Months

- Needed for installation of hydraulic cylinder heads with polyurethane seals used on square shoulder rods
- Chart correlates guides with cylinder rod diameter, thread size, and application

***This article has changed
since the printing of the 2009
Dealer Service Tools Catalog.***



**Typical
Guide**

*This article has changed
since the printing of the 2009
Dealer Service Tools Catalog.*

Seal Guide Number	Rod Larger Outer Diameter	Rod Smaller Outer Diameter	Rod Thread Inner Diameter	Length	Cylinder Where Used
1U-9582	22.28 mm (0.88 in)	15.24 mm (0.60 in)	19.51 mm (0.77 in)	51.05 mm (2.01 in)	
6V-6159	28.58 mm (1.13 in)	21.84 mm (0.86 in)	16.00 mm (0.63 in)	38.10 mm (1.50 in)	
5P-3537	38.10 mm (1.50 in)	34.29 mm (1.35 in)	28.58 mm (1.13 in)	57.15 mm (2.25 in)	920, 930 Steering
1P-0763	38.10 mm (1.50 in)	34.29 mm (1.35 in)	31.75 mm (1.25 in)	57.15 mm (2.25 in)	950 Steering
125-9793	44.00 mm (1.73 in)	39.70 mm (1.56 in)	43.63 mm (1.72 in)	44.00 mm (1.73 in)	
233-7206	44.40 mm (1.75 in)	38.00 mm (1.50 in)	32.00 mm (1.26 in)	82.00 mm (3.23 in)	TH360B, TH460B Rear Frame Lock
233-7207	44.40 mm (1.75 in)	38.00 mm (1.50 in)	32.00 mm (1.26 in)	100.00 mm (3.94 in)	TH460B Frame Level
6V-9072	44.45 mm (1.75 in)	43.94 mm (1.73 in)	39.62 mm (1.56 in)	38.10 mm (1.50 in)	
158-0511	44.96 mm (1.77 in)	25.40 mm (1.00 in)	31.75 mm (1.25 in)	69.30 mm (2.73 in)	CS531, CS533, CS563, CS583, CP533, CP Eccentric Group
8T-9158	45.72 mm (1.80 in)	36.32 mm (1.43 in)	32.26 mm (1.27 in)	45.47 mm (1.79 in)	
233-7208	50.75 mm (2.00 in)	46.00 mm (1.81 in)	38.25 mm (1.51 in)	87.30 mm (3.44 in)	TH350B, TH360B Frame Level
5P-0320	50.80 mm (2.00 in)	46.48 mm (1.83 in)	38.10 mm (1.50 in)	57.15 mm (2.25 in)	J613 Steering and Bowl Lift; 920, 930, 951B; 920, 930, 951B Multi-Purpose Bucket; Side Dump Bucket; 920, 930 Bucket Tilt
5P-6155	66.04 mm (2.60 in)	50.80 mm (2.00 in)	44.45 mm (1.75 in)	57.15 mm (2.25 in)	D8 Bulldozer Tilt
8T-9159	50.80 mm (2.00 in)	30.48 mm (1.20 in)	44.70 mm (1.76 in)	83.82 mm (3.30 in)	
9U-6742	50.80 mm (2.00 in)	41.91 mm (1.65 in)	71.88 mm (2.83 in)	71.88 mm (2.83 in)	
8T-9156	53.34 mm (2.10 in)	33.02 mm (1.30 in)	33.02 mm (1.30 in)	74.93 mm (2.95 in)	
1P-0765	57.15 mm (2.25 in)	53.34 mm (2.10 in)	38.10 mm (1.50 in)	57.15 mm (2.25 in)	834 Steering; 657 Hitch; 920 Bucket Lift
1P-0766	57.15 mm (2.25 in)	53.34 mm (2.10 in)	44.45 mm (1.75 in)	57.15 mm (2.25 in)	966, 980, 977K Logging Fork
1P-0767	57.15 mm (2.25 in)	56.00 mm (2.20 in)	44.50 mm (1.75 in)	57.15 mm (2.25 in)	769B Steering
6V-9052	59.94 mm (2.36 in)	59.94 mm (2.36 in)	50.80 mm (2.00 in)	38.10 mm (1.50 in)	
2P-8301	63.50 mm (2.50 in)	59.18 mm (2.33 in)	44.45 mm (1.75 in)	57.15 mm (2.25 in)	623 Ejector
5P-8565	63.50 mm (2.50 in)	59.18 mm (2.33 in)	44.45 mm (1.75 in)	57.15 mm (2.25 in)	D7F, D7G Dozer Lift
1P-0768	63.50 mm (2.50 in)	59.18 mm (2.33 in)	50.80 mm (2.00 in)	57.15 mm (2.25 in)	992 Steering; 983 Demolition Bucket; 8R, 9R Blade Rip Tooth; 950, 955K, 966C Bucket Lift; 950, 988, 966C Bucket Tilt; Pitch; 988B Logging Fork
365-1766	64.95 mm (2.56 in)	59.21 mm (2.33 in)	50.80 mm (2.00 in)	57.15 mm (2.25 in)	420E Stick Cylinder
233-7209	64.95 mm (2.56 in)	54.00 mm (2.13 in)	44.60 mm (1.76 in)	92.00 mm (3.62 in)	TH360B, TH460B Stabilizer Cylinder
1U-8595	64.97 mm (2.56 in)	58.00 mm (2.28 in)	48.15 mm (1.90 in)	113.00 mm (4.45 in)	MS120-8, E120
FT2416	69.85 mm (2.75 in)	60.96 mm (2.40 in)	39.88 mm (1.57 in)	22.90 mm (0.90 in)	
2P-8284	69.85 mm (2.75 in)	66.04 mm (2.60 in)	50.80 mm (2.00 in)	57.15 mm (2.25 in)	988 Bucket Tilt
1P-0769	69.85 mm (2.75 in)	63.50 mm (2.50 in)	57.15 mm (2.25 in)	57.15 mm (2.25 in)	977K Bucket Tilt
233-7210	69.95 mm (2.75 in)	54.00 mm (2.13 in)	44.60 mm (1.76 in)	106.00 mm (4.17 in)	TH460B Fork Cylinder
1U-8596	69.97 mm (2.75 in)	52.00 mm (2.05 in)	42.15 mm (1.66 in)	100.00 mm (3.94 in)	MS070-8, E70
1U-8597	69.97 mm (2.75 in)	55.00 mm (2.17 in)	45.15 mm (1.78 in)	144.00 mm (5.67 in)	MS110-8, E110
1U-8598	69.97 mm (2.75 in)	62.00 mm (2.44 in)	52.15 mm (2.05 in)	148.00 mm (5.83 in)	MS070-8, E70, MS140-8
233-7211	74.95 mm (2.95 in)	62.00 mm (2.44 in)	52.15 mm (2.05 in)	118.00 mm (4.65 in)	TH360B/460B Fork Cylinder
5P-5191	76.15 mm (3.00 in)	72.39 mm (2.85 in)	50.80 mm (2.00 in)	57.15 mm (2.25 in)	623B Elevating Scraper; D9H Dozer Lift
6V-6013	76.20 mm (3.00 in)	71.70 mm (2.82 in)	44.45 mm (1.75 in)	57.15 mm (2.25 in)	D8L Bulldozer Lift
1P-0770	76.20 mm (3.00 in)	71.70 mm (2.82 in)	57.15 mm (2.25 in)	57.15 mm (2.25 in)	980 Bucket Tilt
244-8857	79.95 mm (3.15 in)	54.00 mm (2.13 in)	44.45 mm (1.75 in)	93.00 mm (3.66 in)	TH330B Boom Raise
1U-8602	79.97 mm (3.15 in)	66.00 mm (2.60 in)	56.15 mm (2.21 in)	200.00 mm (7.87 in)	MS140-8
1U-8603	79.97 mm (3.15 in)	72.00 mm (2.83 in)	62.15 mm (2.45 in)	146.00 mm (5.75 in)	MS120-8, E120
6V-3036	82.55 mm (3.25 in)	78.05 mm (3.07 in)	50.80 mm (2.00 in)	57.15 mm (2.25 in)	D9L Bulldozer Lift
1P-0772	82.55 mm (3.25 in)	78.05 mm (3.07 in)	57.15 mm (2.25 in)	57.15 mm (2.25 in)	8D Ripper Lift
1P-0773	82.55 mm (3.25 in)	78.05 mm (3.07 in)	63.50 mm (2.50 in)	57.15 mm (2.25 in)	983 Ripper Lift, 988B Bucket Tilt
1P-0774	82.55 mm (3.25 in)	78.05 mm (3.07 in)	69.85 mm (2.75 in)	57.15 mm (2.25 in)	983, 988 Bucket Lift, 9D Ripper Lift
244-8854	84.95 mm (3.34 in)	70.00 mm (2.76 in)	57.15 mm (2.25 in)	118.00 mm (4.65 in)	TH220B Fork
134-9803	88.65 mm (3.49 in)	76.20 mm (3.00 in)	63.50 mm (2.50 in)	88.90 mm (3.50 in)	D10N Bulldozer Lift
134-9804	88.65 mm (3.49 in)	81.79 mm (3.22 in)	76.20 mm (3.00 in)	99.06 mm (3.90 in)	D11N Bulldozer Lift
233-7212	88.85 mm (3.50 in)	544.00 mm (21.42 in)	44.65 mm (1.76 in)	97.00 mm (3.82 in)	TH350B Boom Raise Cylinder
FT2417	88.90 mm (3.50 in)	82.55 mm (3.25 in)	59.94 mm (2.36 in)	39.90 mm (1.57 in)	D250B, D300B D300D, D44, D44B, D550, D550B
5P-6156	88.90 mm (3.50 in)	85.09 mm (3.35 in)	63.50 mm (2.50 in)	57.15 mm (2.25 in)	225 Clamshell; 980C Lift
244-8855	89.95 mm (3.54 in)	70.00 mm (2.76 in)	57.15 mm (2.25 in)	118.00 mm (4.65 in)	TH330B Fork
1U-8606	89.97 mm (3.54 in)	82.00 mm (3.23 in)	72.15 mm (2.84 in)	196.00 mm (7.72 in)	MS240-8, E240
125-9791	91.20 mm (3.59 in)	81.75 mm (3.22 in)	67.00 mm (2.64 in)	70.00 mm (2.76 in)	
6V-3038	95.25 mm (3.75 in)	88.90 mm (3.50 in)	63.50 mm (2.50 in)	57.15 mm (2.25 in)	963 Bucket Tilt
6V-4938	95.25 mm (3.75 in)	88.90 mm (3.50 in)	69.85 mm (2.75 in)	57.15 mm (2.25 in)	227 Stick
1U-8607	99.97 mm (3.94 in)	82.00 mm (3.23 in)	72.15 mm (2.84 in)	201.00 mm (7.91 in)	MS240-8, E240, MS300-8, E300
221-5385	101.60 mm (4.00 in)	92.66 mm (3.65 in)	82.55 mm (3.25 in)	211.00 mm (8.31 in)	854G, D11R Tilt
233-7213	101.55 mm (4.00 in)	69.00 mm (2.72 in)	57.20 mm (2.25 in)	97.00 mm (3.82 in)	TH360B Boom Raise Cylinder

Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and Assembly

Motor Grader Controls,
Cable Control and Winch

Loader Lift Arm and
Excavator Implement

Implements, Frame,
Hitch and Suspension

*This article has changed
since the printing of the 2009
Dealer Service Tools Catalog.*

Seal Guide Number	Rod Larger Outer Diameter	Rod Smaller Outer Diameter	Rod Thread Inner Diameter	Length	Cylinder Where Used
233-7215	101.55 mm (4.00 in)	69.00 mm (2.72 in)	57.20 mm (2.25 in)	117.00 mm (4.61 in)	TH360B Boom Raise Cylinder
5P-8725	101.60 mm (4.00 in)	97.10 mm (3.82 in)	63.50 mm (2.50 in)	57.15 mm (2.25 in)	D10 Bulldozer Lift
5P-7382	101.60 mm (4.00 in)	97.10 mm (3.82 in)	69.85 mm (2.75 in)	57.15 mm (2.25 in)	988B Bucket Lift
9U-7953	101.60 mm (4.00 in)	97.10 mm (3.82 in)	82.55 mm (3.25 in)	57.15 mm (2.25 in)	992C Bucket Lift
FT2404	101.60 mm (4.00 in)	95.00 mm (3.74 in)	85.09 mm (3.35 in)	100.33 mm (3.95 in)	D25C, D30C D35C, D35HP, D350C, D350D, D400, D400D Suspension Cylinder
4C-6746	101.60 mm (4.00 in)	95.25 mm (3.75 in)	162.56 mm (6.40 in)	162.05 mm (6.38 in)	D10N Tilt Cylinder
FT2415	107.95 mm (4.25 in)	97.79 mm (3.85 in)	80.01 mm (3.15 in)	39.90 mm (1.57 in)	D40D
4C-8122	107.95 mm (4.25 in)	101.60 mm (4.00 in)	82.55 mm (3.25 in)	57.15 mm (2.25 in)	994
132-5139	114.30 mm (4.50 in)	99.57 mm (3.92 in)	82.55 mm (3.25 in)	114.30 mm (4.50 in)	5230 Bucket Dump
162-7704	121.00 mm (4.76 in)	105.40 mm (4.15 in)	76.20 mm (3.00 in)	125.00 mm (4.92 in)	
9U-7456	127.00 mm (5.00 in)	119.89 mm (4.72 in)	97.00 mm (3.82 in)	299.72 mm (11.80 in)	
187-1054	127.00 mm (5.00 in)	95.25 mm (3.75 in)	88.90 mm (3.50 in)	157.48 mm (6.20 in)	D11R Carrydozer Tilt
1U-8611	129.97 mm (5.12 in)	105.00 mm (4.13 in)	95.15 mm (3.75 in)	248.00 mm (9.76 in)	MS450-8, E450
129-4539	137.16 mm (5.40 in)	130.05 mm (5.12 in)	120.73 mm (4.75 in)	101.60 mm (4.00 in)	992G Tilt Cylinder
4C-8123	139.70 mm (5.50 in)	133.10 mm (5.24 in)	82.55 mm (3.25 in)	82.55 mm (3.25 in)	
132-5140	139.70 mm (5.50 in)	121.41 mm (4.78 in)	82.55 mm (3.25 in)	139.70 mm (5.50 in)	5110 Bucket and Stick
1U-8612	139.97 mm (5.51 in)	115.00 mm (4.53 in)	105.15 mm (4.14 in)	244.00 mm (9.61 in)	MS650-8, E650
129-4541	146.05 mm (5.75 in)	139.70 mm (5.50 in)	127.07 mm (5.00 in)	99.06 mm (3.90 in)	
132-5141	152.40 mm (6.00 in)	132.59 mm (5.22 in)	82.55 mm (3.25 in)	152.40 mm (6.00 in)	5130 Front Shovel
132-5142	165.10 mm (6.50 in)	143.51 mm (5.65 in)	101.60 mm (4.00 in)	165.10 mm (6.50 in)	5130 Backhoe Bucket Cylinder; 5110 Boom
4C-4063	508.00 mm (20.00 in)	355.60 mm (14.00 in)	70.61 mm (2.78 in)	198.12 mm (7.80 in)	

Sensor Installation Tools for Position-Sensing Hydraulic Cylinders

SMCS Code: 7562, 5721

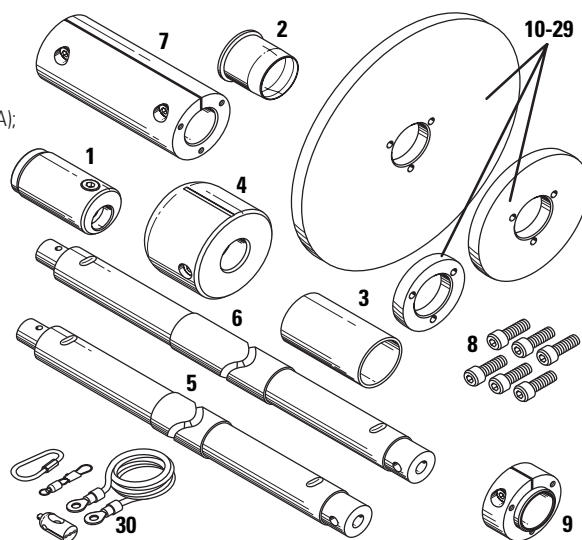
Model: D8T (KPZ, J8B); D9T (RJS); D10T (RJG) Track-Type Tractors 416E (SHA); 420E (HLS, KMW); 430E (EAT, DDT); 432E (BXE); 434E (FSH); 442E (GKZ) Backhoe Loaders 988G (BNH); 980H (JMS) Wheel Loaders 824H (ASX); 834H (BTX); 825H (AZW); 826H (AWF); 836H (BXD) Wheel Dozers

Essential Tool

Warranty: Six Months

265-4177 Service Group

- Used to install sensors in clevis-mounted, position-sensing hydraulic cylinders (PCS)
- Ensures accurate alignment of sensor
- Reduces possibility of damage to seal on sensor
- Reduces chances of damaging cylinder bore during installation



Item	Part No.	Description	Qty.
1	265-4180	Installer Group	1
2	265-4181	Sleeve	1
3	265-4182	Sleeve Removal Tool	1
4	265-4183	Driver Group (includes driver cap and bolt)	1
5	265-4184	Extension Tube, 50.0 cm (19.7 in)	2
6	265-4185	Extension Tube, 75.0 cm (29.5 in)	3
7	265-4186	Coupler Group	2
8	8T-0269	M6 x 1 Bolt	6
9	265-4187	Support Collar Group	1
10	265-4188	Support Disc, 266.50 mm (10.49 in)	1
11	265-4189	Support Disc, 253.80 mm (9.99 in)	1
12	265-4190	Support Disc, 234.75 mm (9.24 in)	1
13	265-4191	Support Disc, 219.80 mm (8.65 in)	1
14	265-4192	Support Disc, 196.65 mm (7.74 in)	1
15	265-4193	Support Disc, 179.80 mm (7.08 in)	1
16	265-4194	Support Disc, 158.55 mm (6.24 in)	1
17	265-4195	Support Disc, 149.80 mm (5.89 in)	1
18	265-4196	Support Disc, 139.80 mm (5.50 in)	1
19	265-4197	Support Disc, 133.05 mm (5.24 in)	1

Item	Part No.	Description	Qty.
20	265-4198	Support Disc, 129.80 mm (5.11 in)	1
21	265-4199	Support Disc, 126.80 mm (4.99 in)	1
22	265-4200	Support Disc, 120.45 mm (4.74 in)	1
23	265-4201	Support Disc, 119.80 mm (4.72 in)	1
24	265-4202	Support Disc, 114.10 mm (4.49 in)	1
25	265-4203	Support Disc, 107.75 mm (4.24 in)	1
26	265-4204	Support Disc, 95.05 mm (3.74 in)	1
27	265-4205	Support Disc, 88.70 mm (3.49 in)	1
28	265-4206	Support Disc, 84.80 mm (3.34 in)	1
29	265-4207	Support Disc, 76.00 mm (2.99 in)	1
30	265-4208	Wire Guide Group	1
Not shown	4C-9664	Case	1
	265-4179	Foam Insert	1

*This article has changed
since the printing of the 2009
Dealer Service Tools Catalog.*

Vehicle System Tools

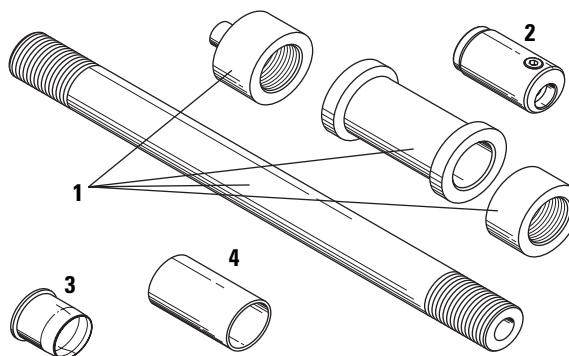
265-4209 Service Group

- Used to install sensors in trunnion-mounted, position-sensing hydraulic cylinders (PCS)
- Ensures accurate alignment of sensor
- Reduces possibility of damage to seal on sensor

Reference

NEHS0935, Tool Operating Manual, Using the 265-4177 and 265-4209 Service Tool Groups to Install Sensors in Position-Sensing Hydraulic Cylinders

Item	Part No.	Description	Qty.
1	265-4212	Slide Hammer Group	1
2	265-4180	Installer Group	1
3	265-4181	Sleeve	1
4	265-4182	Sleeve Removal Tool	1
Not shown	4C-9662	Case	1
	265-4211	Foam Insert	1



This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

Implements, Frame, Hitch and Suspension

301-9788 Sensor Installer Group

SMCS Code: 7562, 5721

Model: 430E (DDT1-Up, EAT1-Up) Backhoe Loaders

Essential Tool

Warranty: Six Months

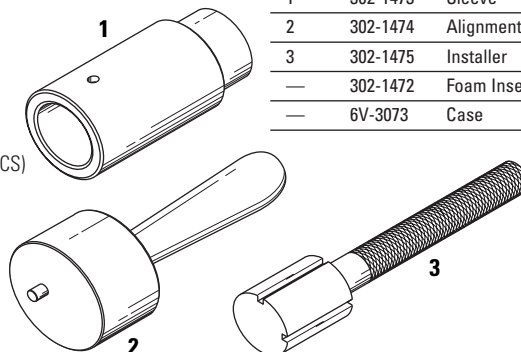
NEW TOOL

- Used to install sensor into position-sensing hydraulic cylinder (PCS)
- Ensures accurate alignment of sensor
- Reduces possibility of damage to seal or cylinder bore
- Includes protective storage case

References

REN6485, Service Manual

NEHS0999, Tool Operating Manual, 301-9788 Sensor Installer Group



Item	Part No.	Description
1	302-1473	Sleeve
2	302-1474	Alignment Pin (with handle)
3	302-1475	Installer
—	302-1472	Foam Inserts (for case)
—	6V-3073	Case

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

162-7704 Seal Installer Group

SMCS Code: 5456-017, 5457-017, 5458-017

Model: 318B, 320, 320B, 322, 322B, and 325 Excavators

Essential Tool

Warranty: Six Months

- Used to install 096-7803 Seal onto 4L-3614 Cylinder Piston
- Inside diameter of pusher can be used to size outside diameter of seal after installation
- Helps prevent seal damage during installation
- Made from durable plastic

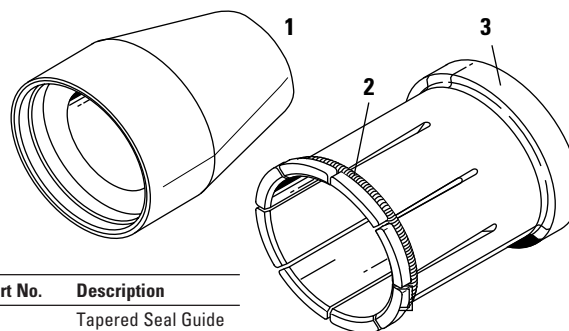
Tapered Seal Guide

Outside diameter (large end)	121.0 mm (4.76 in)
Outside diameter (small end)	105.4 mm (4.15 in)
Counterbore diameter	119.6 mm (4.71 in)
Inside diameter	76.2 mm (3.00 in)

Pusher

Inside diameter	120.1 mm (4.73 in)
Length	152.4 mm (6.00 in)

Item	Part No.	Description
1		Tapered Seal Guide
2	130-8364	Extension Spring
3		Sealing ring pusher

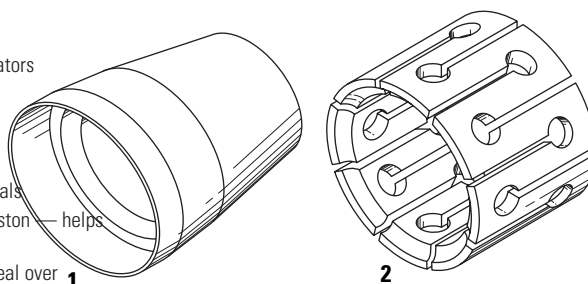


Seal Installer Group

SMCS Code: 5456-017, 5457-017, 5458-017
Model: 312B to 385B, 312C, and 330C Excavators
Warranty: Six Months

NEW TOOL

- Used to install hydraulic cylinder piston seals
- Tapered mandrel (1) stretches seal over piston — helps prevent seal damage during installation
- Sealing ring pusher (2) uniformly pushes seal over mandrel (1) and into piston groove
- Two different length mandrels (1) are required to install seals on doublegroove pistons
- Inside diameter of sealing ring pusher (2) can be used to “size” outside diameter of seal after installation
- Sealing ring pushers are made from durable plastic, tapered mandrels are steel construction



Sealing Ring Pusher (Item 2)

Part No.	Inside Diameter	Length
318-2314	43.4 mm (1.70 in)	44 mm (1.73 in)
318-2315	49.3 mm (1.94 in)	48 mm (1.89 in)
318-2316	59.2 mm (2.33 in)	60 mm (2.36 in)
318-2317	64.2 mm (2.53 in)	64 mm (2.52 in)
318-2318	69.1 mm (2.72 in)	72 mm (2.83 in)
318-2319	79.0 mm (3.11 in)	80 mm (3.15 in)
318-2320	88.9 mm (3.50 in)	88 mm (3.46 in)
318-2321	118.7 mm (4.67 in)	120 mm (4.72 in)

Tapered Mandrel (Item 1)

Part No.	Outside Diameter Large End	Outside Diameter Small End	Counter Bore Diameter	Inside Diameter	Counterbore Length	Overall Length
318-2322	52 mm (2.04 in)	36.9 mm (1.45 in)	50.03 mm (1.98 in)	33.9 mm (1.33 in)	15 mm (0.59 in)	60 mm (2.36 in)
318-2323	62 mm (2.44 in)	41.9 mm (1.65 in)	60.03 mm (2.37 in)	38.9 mm (1.53 in)	13 mm (0.51 in)	72 mm (2.83 in)
318-2324	72 mm (2.83 in)	50.3 mm (1.98 in)	70.03 mm (2.77 in)	47.3 mm (1.86 in)	17 mm (0.67 in)	82 mm (3.23 in)
318-2325	77 mm (3.03 in)	54.6 mm (2.15 in)	75.03 mm (2.96 in)	51.6 mm (2.03 in)	20 mm (0.79 in)	85 mm (3.35 in)
318-2326	82 mm (3.23 in)	58.7 mm (2.31 in)	80.03 mm (3.16 in)	55.7 mm (2.19 in)	20 mm (0.79 in)	90 mm (3.54 in)
318-2327	92 mm (3.62 in)	67.2 mm (2.65 in)	90.03 mm (3.55 in)	64.2 mm (2.53 in)	20 mm (0.79 in)	95 mm (3.74 in)
318-2328	102 mm (4.02 in)	75.6 mm (2.98 in)	100.03 mm (3.95 in)	72.6 mm (2.86 in)	20 mm (0.79 in)	100 mm (3.94 in)
318-2329	132 mm (5.20 in)	100.9 mm (3.97 in)	130.03 mm (5.13 in)	97.9 mm (3.85 in)	24 mm (0.94 in)	114 mm (4.49 in)
318-2972	52 mm (2.04 in)	36.9 mm (1.45 in)	50.03 mm (1.98 in)	33.9 mm (1.33 in)	35 mm (1.38 in)	80 mm (3.15 in)
318-2973	62 mm (2.44 in)	41.9 mm (1.65 in)	60.03 mm (2.37 in)	38.9 mm (1.53 in)	31 mm (1.22 in)	90 mm (3.54 in)
318-2974	72 mm (2.83 in)	50.3 mm (1.98 in)	70.03 mm (2.77 in)	47.3 mm (1.86 in)	35 mm (1.38 in)	100 mm (3.94 in)
318-2975	77 mm (3.03 in)	54.6 mm (2.15 in)	75.03 mm (2.96 in)	51.6 mm (2.03 in)	40 mm (1.57 in)	105 mm (4.13 in)
318-2976	82 mm (3.23 in)	58.7 mm (2.31 in)	80.03 mm (3.16 in)	55.7 mm (2.19 in)	40 mm (1.57 in)	110 mm (4.33 in)
318-2977	92 mm (3.62 in)	67.2 mm (2.65 in)	90.03 mm (3.55 in)	64.2 mm (2.53 in)	40 mm (1.57 in)	115 mm (4.53 in)
318-2978	102 mm (4.02 in)	75.6 mm (2.98 in)	100.03 mm (3.95 in)	72.6 mm (2.86 in)	40 mm (1.57 in)	120 mm (4.72 in)
318-2979	132 mm (5.20 in)	100.9 mm (3.97 in)	130.03 mm (5.13 in)	97.9 mm (3.85 in)	45 mm (1.77 in)	135 mm (5.31 in)

Piston Seal and Rod Installers

SMCS Code: 4303-016
Model: TH62, TH63, TH82, and TH83 Telescopic Material Handler
Warranty: Six Months

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

125-9791 Seal Installer

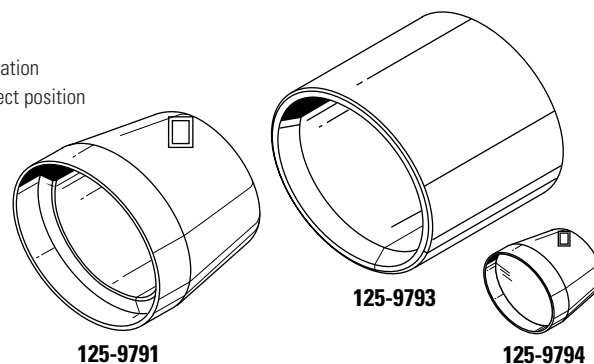
- Used to install piston seals while preventing seal damage during installation
- Locates over piston rod and guides seals over piston and into their correct position

125-9792 Seal Resizer

- Used to compress piston seals to their correct size during installation
- Installs over piston and guides seals into cylinder body
- Helps prevent damaging seals during assembly

125-9793 Installer Rod

- Used to help install piston rod into cylinder body while preventing seal damage during assembly (slips onto end of rod)
- Locates over end of piston rod to guide seals onto rod



Reference

SENR5846; Disassembly and Assembly;
TH62, TH63, TH82, and TH83 Telehandlers,
Machine Systems

Part No.	Description	Length	Outside Diameter	Inside Diameter	Material
125-9791	Seal Installer	70.0 mm (2.8 in)	91.2 mm (3.59 in)	67.0 mm (2.637 in)	Nylon or teel
125-9792	Seal Resizer	70.0 mm (2.8 in)	101.2 mm (4.98 in)	90.03 mm (3.544 in)	Nylon or steel
125-9793	Installer Rod	4400 mm (1.7 in)	44.98 mm (1.771 in)	31.75 mm (1.25 in)	Nylon or steel

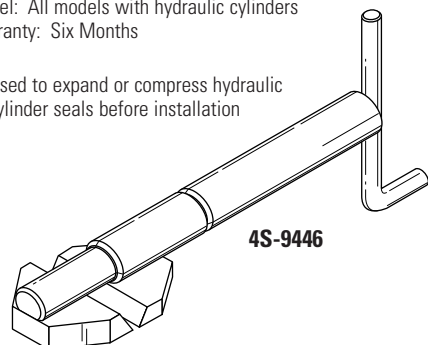
4S-9446 Clamp Assembly Compressor Assemblies

SMCS Code: 5100-012

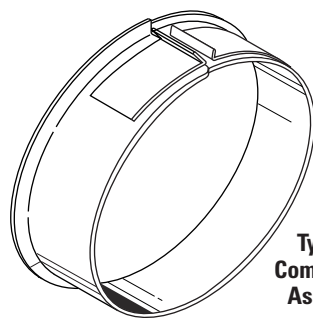
Model: All models with hydraulic cylinders

Warranty: Six Months

- Used to expand or compress hydraulic cylinder seals before installation



4S-9446



Typical
Compressor
Assembly

Compressor Assemblies	
Part No.	Size
9S-0289	38.1 - 72.2 mm (1.5 - 3.0 in)
4S-9450	114.3 - 120.7 mm (4.5 - 4.75 in)
4S-9453	152.4 - 158.8 mm (6.0 - 6.25 in)

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

175-1344 Piston Installer

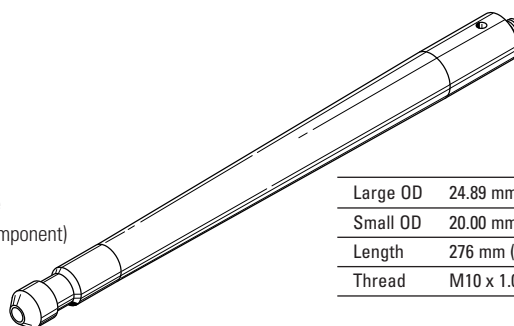
SMCS Code: 5453-0170

Model: 315B, 317B, and 318B Excavators
(Grenoble Version)

Essential Tool

Warranty: Six Months

- Used to install spool assembly into 168-3657 Boom Lowering Check Valve
- Pilots spool assembly into main valve body (prevents damage to either component)
- Makes assembly easier and quicker



Large OD	24.89 mm (0.980 in)
Small OD	20.00 mm (0.787 in)
Length	276 mm (10.9 in)
Thread	M10 x 1.0

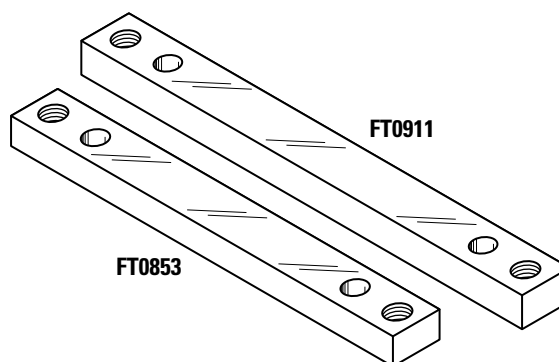
FT0853 Adapter FT0911 Adapter

SMCS Code: 5100-011

Model: 992 Wheel Loader

Warranty: None

- Required to remove lift cylinder trunnion bearing retainer
FT0853 for serial number 25K1-404
FT0911 for serial numbers 25K405-Up
- Should be used with 1A-1135 Bolts and 3L-2227 Forcing Bolts
- Material: SAE 1020 steel



FT0853

FT0911

229-3612 Relief Valve Tool Assembly

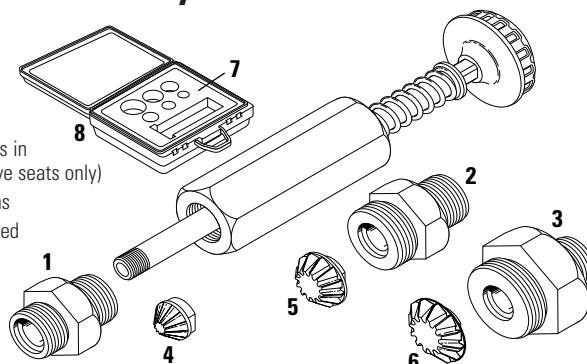
SMCS Code: 5453-017

Model: Caterpillar Hydraulic Control Valves

Essential Tool

Warranty: Six Months

- Used to repair/recondition worn valve seats in hydraulic control valve body (line relief valve seats only)
- Restores valve seat to factory specifications
- No need to remove valve; repair is performed "in-chassis"
- In most cases, valve assembly is repaired and not replaced—saves time and expense
- Works on three sizes of line relief valves: 1 $\frac{1}{16}$, 1 $\frac{1}{8}$, and 1 $\frac{3}{8}$ threaded valve port
- Comes with case, foam insert, and operating instructions



Service/Repair Parts		
Item	Part No.	Description
1	229-3613	Adapter Assembly for 1 $\frac{1}{16}$ -12 in threaded port
2	229-3618	Adapter Assembly for 1 $\frac{1}{8}$ -12 in threaded port
3	229-3619	Adapter Assembly for 1 $\frac{3}{8}$ -12 in threaded port
4	229-3615	Cutter for 1 $\frac{1}{16}$ in threaded port
5	229-3616	Cutter for 1 $\frac{1}{8}$ in threaded port
6	229-3617	Cutter for 1 $\frac{3}{8}$ in threaded port
7	229-3620	Foam Block
8	6V-3072	Plastic Case
Not shown		
	6W-7301	Retaining Ring
	4B-4280	Washer

Reference

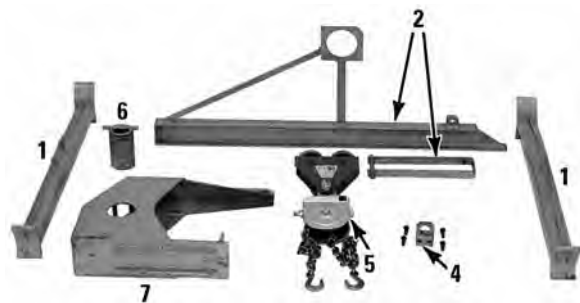
NEHS0871, Repairing Line Relief Valve Seats Using the 229-3612 Hydraulic Valve Seat Repair Kit

Lift Cylinder Removal and Installation Tools

SMCS Code: 5100-010
Model: 992 Wheel Loader
Warranty: Six Months

- Used to remove and install lift cylinders without use of heavy crane and without removing lift arms and bucket

Item	Part No.	Description
1	—	Lift Arm Support Assembly — 2 required
2	—	Beam Group
3	—	Trolley
4	FT0845	Bracket with four S01595 Bolts
5	9S-9101	Sling Assembly
6	FT0844	Pin
7	FT0846	Lifting Bracket
8	FT0951	Guide

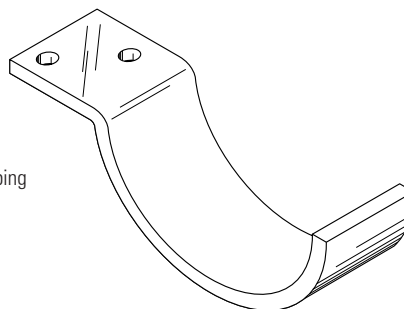


This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

FT0951 Guide

SMCS Code: 5100-010
Model: 992
Warranty: None

- When installing 992 lift cylinders, assemble this guide on 9S-9101 Sling Assembly to prevent chain from slipping
- Used only when lowering cylinder with one chain



FT2442 Puller Plate

SMCS Code: 5102-011
Model: 793 and 793B Off-Highway Trucks
Warranty: None

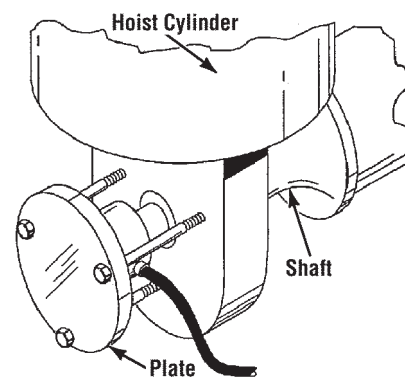
- Used to hydraulically separate lower eye of body lift cylinder from 8X-1213 Shaft (part of frame) — very difficult to remove without puller tooling
- Used with three 9X-6151 Bolts, one cylinder, three 7X-0533 Washers, and a hydraulic power source
- Current lift cylinders have puller holes to accommodate tooling — former cylinders without puller holes can be reworked per Service Magazine article 6/28/93

Reference

Service Magazine, 6/28/93 "Puller Holes Added to Hoist Rod Assembly for Easy Removal"

Capacity	890 kN (100 tons)
Outside diameter	320.0 mm (12.6 in)
Thickness	38.1 mm (1.50 in)
Bolt hole circle	264.0 mm (10.4 in)
Hole diameter	3300 mm (1.3 in)
Material	ASTM A36 plate steel

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

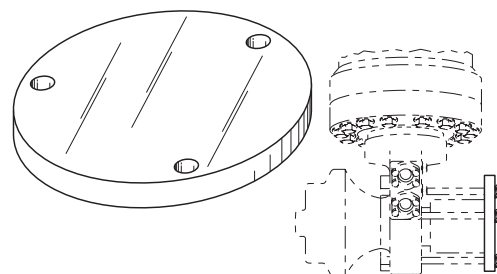


FT3075 Puller Plate

SMCS Code: 5102-011
Model: 784, 785, and 789 Off-Highway Truck
Warranty: None

NEW TOOL

- Used to hydraulically separate lower eye of 9T-2807 Hoist Cylinder from 6G-6499 Axle Group
- Used with dealer supplied hardware and components: three 4J-7945 Bolts, three 5P-8248 Washers, one single acting, spring return hydraulic lifting cylinder, 6G-8221 Retainer Plate, and a hydraulic power supply and hose
- Material: A36 Plate Steel

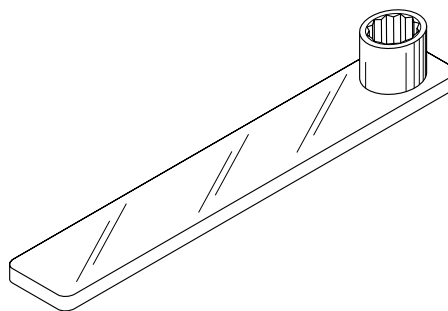


This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

FT1612 Wrench Assembly

SMCS Code: 5050-025
Model: 215 and 225 Excavators
Warranty: None

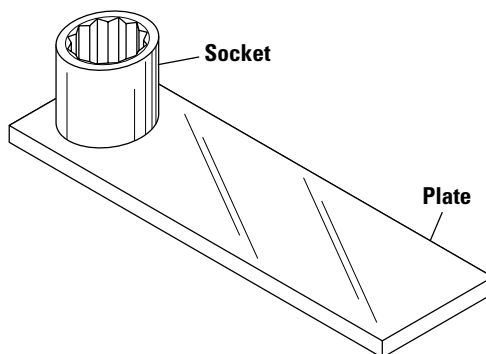
- Used with $\frac{3}{16}$ inch hex wrench for adjustment of piston pump servo valve
- Used on locknut for adjustment screw which is recessed in plug
- Required: 8H-8551 Socket, $\frac{1}{2}$ inch drive, $1\frac{1}{16}$ inch, 12 pt., 38.1 mm ($1\frac{1}{2}$ inch) long



FT2774 Wrench Assembly

SMCS Code: 5050-025
Model: 963C and 973C Track Loader
Warranty: None

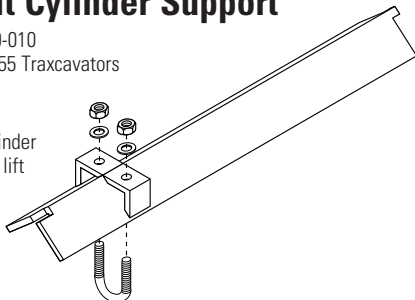
- Used to adjust servo cylinder actuator
- Plate: SAE1020 steel
- Socket: 8H-8555, $1\frac{1}{16}$, 12 point



FT0580 Lift Cylinder Support

SMCS Code: 5100-010
Model: 933 and 955 Traxcavators
Warranty: None

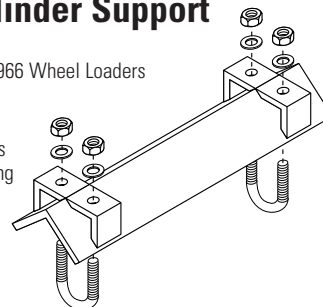
- Used on lift cylinder rods to support lift arms during service work
- 2 required



FT0581 Tilt Cylinder Support

SMCS Code: 5100-010
Model: 922, 944, 950 and 966 Wheel Loaders
Warranty: None

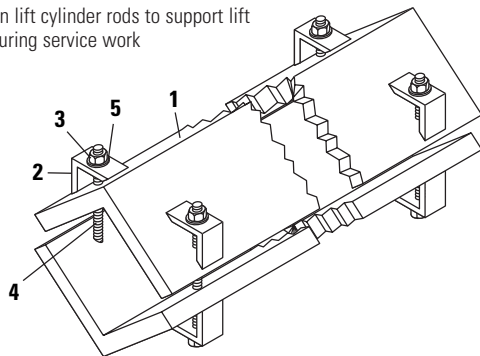
- Used on tilt cylinder rods to support tilt arms during service work
- 2 required



FT2633 Support Assembly

SMCS Code: 5100-010
Model: 994D Wheel Loader
Essential Tool
Warranty: None

- Used on lift cylinder rods to support lift arms during service work



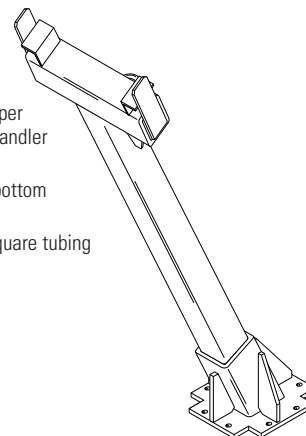
Item	Part No.	Description	Material
1		Block Angle Assembly	ASTM A36 steel
2		Clamping Angle	ASTM A36 steel
3	6V-8188	Full Nut	
4		Threaded Rod	SAE4140 steel
5	8T-4223	Hard Washer	

174-7525 Telehandler Boom Support

SMCS Code: 5050-010
Model: All Telehandler Models
Essential Tool
Warranty: Six Months

European Union compliant, CE marked

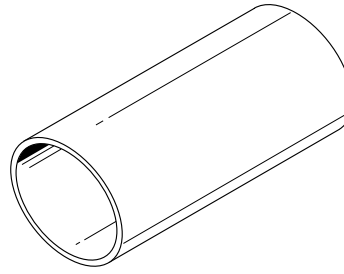
- Used to support main boom in a raised position during maintenance and service operations
- Bolts in place of rubber bumper pad centered on top of telehandler machine body
- Designed to clear tubes on bottom of boom
- Designed with heavy-duty square tubing



FT2583 Alignment Tube

SMCS Code: 5104-012
Model: D11R Track-Type Tractor
Warranty: None

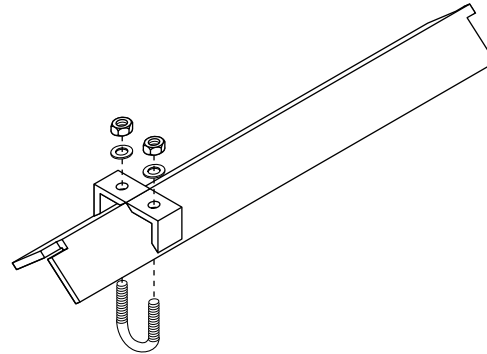
- Used to maintain spacers and tilt cylinder when installing pin on dozer blade tilt cylinder assembly
- Material: steel



FT0582 Lift Cylinder Support Block

SMCS Code: 5100-010
Model: 950, 966B and 966C Wheel Loaders
Warranty: None

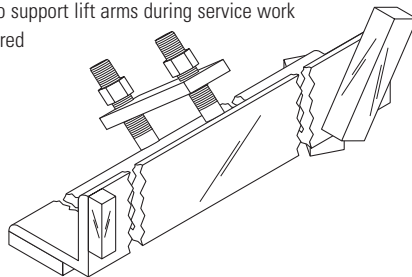
- Used on lift cylinder rods to support lift arms during service work
- 2 required



FT0583 Lift Cylinder Support Block

SMCS Code: 5100-010
Model: 977 Traxcavator
Warranty: None

- Used to support lift arms during service work
- 2 required



FT0506 Lifting Fixture

SMCS Code: 4094-017, 3050-017, 3108-017, 6236-017, 7107-017, 3159-017
Model: 3-Axle Tractor-Scrapers
Warranty: None

- Used to lift hydraulic tank on 3-axle tractor-scrapers
- 3D-6684 Cap used to fabricate the tool

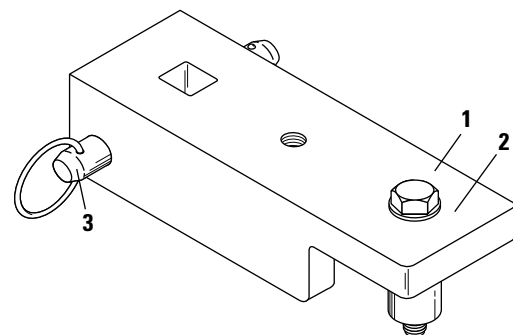


191-3557 Hydraulic Filter Removal Adapter

SMCS Code: 5068-011
Model: All 300B Series Excavators
Warranty: Six Months

- Used to take out hard-to-remove hydraulic filter capsules
- Eliminates possible damage to filter capsule during removal
- $\frac{3}{8}$ -16 threaded hole for eyebolt
- $\frac{1}{2}$ inch square drive for ratchet wrench

Service/Repair Parts		
Item	Part No.	Description
1	1H-5403	Bolt
2	9M-1974	Washer
3	3W-9402	Pin



Tools for Servicing Caterpillar Piston-Type Hydraulic Motors

SMCS Code: 5058-017

Model: See Chart

Warranty: Six Months

- Typical piston motor tools are illustrated
- Use chart to select tools for all machines

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.



Item	Description	215 8J-6853 ¹ Motor	225 9J-9362 ¹ Motor	235 8J-1905 Motor	245 3G-7230 ¹ Motor	245 8J-4379 ¹ Motor	110G-120G 8J-6730 Motor	12G-130G-140G 8J-0498 Motor	14G-16G 8J-6855 ¹ Motor	988 7J-8240 ¹ Motor
1	Retraction Plate (1) or Clamp (2)	—	—	5P-2989	5P-2989	—	—	—	—	—
3	Depth Gauge	6V-2012	6V-2012	6V-2012	6V-2012	6V-2012	6V-2012	6V-2012	6V-2012	6V-2012
4	Depth Gauge Rod	—	—	6V-0088 6V-0091	6V-0088 6V-0091	—	—	—	—	—
5	Pump Fixture	—	—	—	—	—	—	—	—	—
6	Support Block	FT1017	FT1017	FT1017	FT1017	FT1017	FT1017	FT1017	FT1017	FT1017
7	Protective Plate	—	—	—	—	—	—	—	—	—
8	Seal Driver	—	—	—	—	—	—	—	—	—
9	Spring Compressor	—	—	—	—	—	—	—	—	—
10	Stop Angle Bar ¹	—	—	—	—	—	—	—	—	—
11	Gauging Bar ¹	—	—	—	—	—	—	—	—	—
12	Spanner Wrench	—	—	—	—	5P-2190	—	—	5P-2190	2P-2317
13	Shaft Fixture	—	FT1018	—	—	FT1018	—	—	—	FT1018
14	Swashplate Link Clips	—	5P-4759	5P-4759	5P-4759	5P-4759	—	—	5P-4759	—
15	Guide Rod	FT1016	FT1157	FT1145	FT1145	FT1157	FT1016	FT1016	FT1157	FT1016

¹ Discontinued part numbers.

Tools for Servicing Caterpillar Piston Type Hydraulic Pumps

SMCS Code: 5058-017

Model: See Chart

Warranty: Six Months

- Typical piston pump tools are illustrated
- Use chart to select tools for all machines



This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Item	Description	215 8J-6848 Pump	225 8J-0448 ¹ Pump	235 8J-6773 ¹ Pump	245 9J-1993 ¹ Pump	16G 8J-9249 ¹ Pump	14G 9J-0439 Pump	12G 9J-0688 ¹ Pump
1	Puller Bolt	—	—	—	—	—	—	—
2	Bearing Driver	—	—	—	—	—	—	—
3	Seal Driver	—	—	—	—	—	—	—
4	Handle	—	—	FT1146	FT1146	—	—	—
5	Pump Fixture	—	—	—	—	—	—	—
6	Fixture and Rods	—	—	FT1549 ¹ FT1531 FT1550	FT1549 ¹ FT1531 FT1550	—	—	—
7	Spanner Wrench	—	—	FT1532 ²	FT1532 ²	—	—	—
8	Guide Rod	FT1016 FT1038	FT1038	FT1145	FT1145	—	—	—
9	Support Block	FT1017	FT1017	FT1017	FT1017	—	—	—
10	Bracket Assembly	—	—	—	—	—	—	—
11	Body Fixture Plate	—	—	FT1147	FT1147	—	—	—
12	Drive Plate Fixture Plate	—	—	—	FT1148	FT1148	—	—
13	Bearing Cone	—	—	FT1149	FT1149	—	—	—
14	Fixture Plate	—	—	FT1150	FT1150	—	—	—
15	Retraction	—	—	—	—	—	—	—
16	Plate (15) or Clamp (16)	—	—	—	—	—	—	—
17	Protective Plate	—	—	—	—	—	—	—
18	Socket Assembly	—	—	—	—	5P-3038	—	—
19	Spring Compressor	—	—	—	—	—	—	—
20	Step Plate	—	—	—	—	—	—	—

¹ Discontinued

Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

Implements, Frame, Hitch and Suspension

179-6521 Test Ring

SMCS Code: 5070-016

Model: 988G Wheel Loader or other machines with discontinued 146-8030 Piston Pumps

Essential Tool

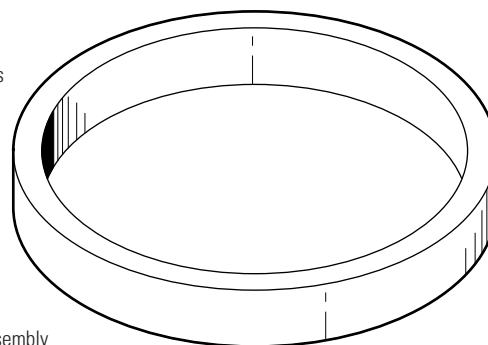
Warranty: Six Months

- Used to quickly and easily measure pump barrel lift-off shim thickness on discontinued 146-8030 Pumps
- Heat-treated and precision ground for durability and accurate measurements
- Made of stainless steel for long, corrosion-free life

Reference

REN2173, Service Manual, 988G Wheel Loader Machine Systems Disassembly and Assembly

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.



180-6533 Seal Driver

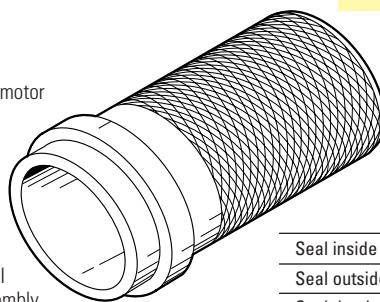
SMCS Code: 5070-016, 5058

Model: 345B Series II Excavator and other machines with discontinued 170-7572 Hydraulic Piston Motors

Essential Tool

Warranty: Six Months

- Used to install shaft seal without disassembling motor
- Proper installation provides longer service life
- Tools are heat-treated and precision machined
- Tools are black oxide coated for long, corrosion-free life



This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Reference

SEN1934, Service Manual, 345B and 345B Series II Excavators Machine Systems Disassembly and Assembly

Seal inside diameter	53.98 mm (2.125 in)
Seal outside diameter	77.88 mm (3.066 in)
Seal depth from housing face	13.80 mm (0.543 in)

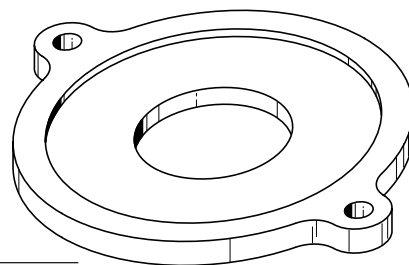
Plate Assemblies

SMCS Code: 5070-016

Model: Caterpillar Designed Hydraulic Piston Pumps

Warranty: Six Months

- Plate assembly holds rotating group, swashplate, and shaft together as one unit while removing or installing this assembly from/into the pump housing
- Bolt plate assembly in place using 2 customer-supplied bolts and washers



This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Part No.	Application	Center Distance Between Bolt Holes
129-1028	250 cc pump	188.7 mm (7.42 in)

5P-2390 Gauge Tool Group

SMCS Code: 3108-017, 3108-025, 4150-010, 4150-012, 3108-016, 3103-017, 3100-017

Model: 225 and 235 Excavators

Warranty: Six Months

- Used with 8S-2328 Dial Test Indicator Group to set pump drive bearing clearance to an accuracy of ± 0.03 mm (± 0.0001 in)
- Fits directly into all 3 gears of 225 Excavator pump drive and center gear of 235 Excavator pump drive
- Can also be adapted to outer 2 gears of 235 Excavator pump drive, which have larger splines, by using 38.0 mm (1.5 in) length piece of 25.0 mm (1.0 in) internal diameter XT-3 Hose which has been cut through on 1 side
- When used in outer gears of 235 Excavator pump drive, dial indicator stylus must be placed directly on gear hub, rather than the end of tool group, to achieve desired accuracy

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.



Item	Part No.	Description
1	1K-6872	Locknut
	1B-4330	Setscrew
		Nut

Timing Tools for Scrap Shear Rotators

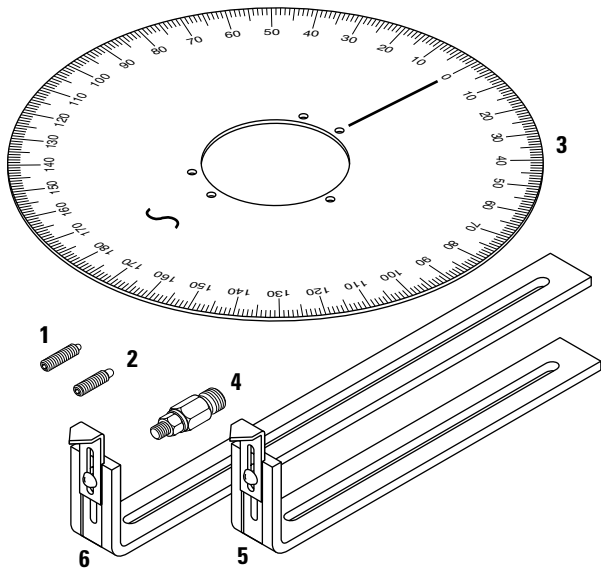
SMCS Code: 6700-531
Model: All Scrap Shears
Essential Tool
Warranty: Six Months

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

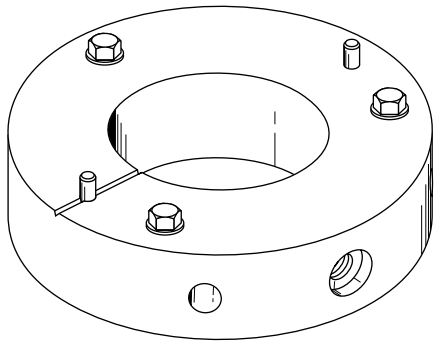
- Used to provide accurate timing of 190 degree rotating scrap shears after repair
- Two spiral gears are timed to obtain 95 degree rotation from zero in each direction
- Makes installation and timing process quicker and easier
- Use 170-0545 Degree Wheel and 170-0552 Alignment Stud Group on all models
- Use locator screws, timing ring assemblies, and pointer groups on specific models only
- Tools serviced separately to help lower dealer cost

Reference

REN4423, Service Manual, Scrap Shear Rotators



Item	Part No.	Description	Models
1	170-0542	Locator Screw	S25, S30, S40, S50, S130, S225, S230, S240, S250, S2130
2	170-0544	Locator Screw	S80, S90, S280, S290
3	170-0545	Degree Wheel	All Models
4	170-0552	Alignment Stud Group (2 required)	All Models
5	170-0553	Pointer Group	S25, S50, S130, S225, S250, S2130
6	170-0554	Pointer Group	S40, S80, S90, S240, S280, S290



Typical Timing Ring Assembly

Part No.	Description	Models
170-0546	Timing Ring Assembly	S25, S225
170-0547	Timing Ring Assembly	S30, S230
170-0548	Timing Ring Assembly	S40, S240
170-0549	Timing Ring Assembly	S50, S130, S250, S2130
170-0550	Timing Ring Assembly	S80, S280
170-0551	Timing Ring Assembly	S90, S290

Service/Repair Parts	
Part No.	Description
Timing Ring Assembly	
095-7992	Dowel
8T-4200	Bolt
8T-4224	Washer
Pointer Group	
1D-4669	Carriage Bolt
1F-1739	Wing Nut
Locator Screw	
8T-4223	Washer
6V-8188	Nut

Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

Implements, Frame, Hitch and Suspension

185-3208 Hydraulic Hammer Stand

FT2639 Hammer Stand Pin Group

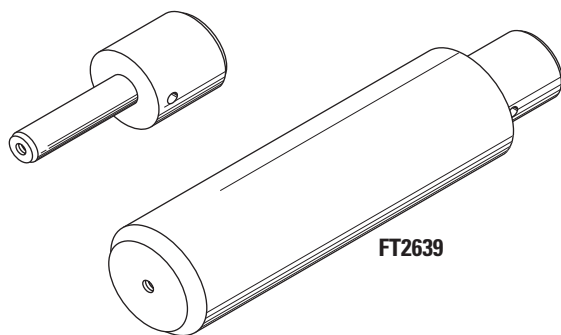
SMCS Code: 0756-745, 7960

Model: All Caterpillar Hydraulic Hammers

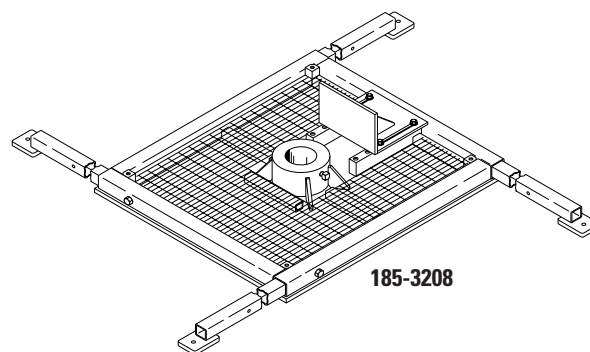
Warranty: 185-3208 Hydraulic Hammer Stand: Six Months

FT2639 Hammer Stand Pin Group: None

- Used to hold hydraulic hammers during repairs
- Universal repair stand holds all hydraulic hammers
- Includes oil basin to contain oil spills
- Extendible/retractable legs (extend to stabilize operation and retract for easier storage)
- FT2639 is a complete set of drawings for all center pins (make only pins needed to service specific hammers)



FT2639



185-3208

Base size (retracted)	1219 x 1219 mm (48 x 48 in)
Base size (extended)	2045 x 2045 mm (80 x 80 in)
Steel (pins)	1215 CF

283-9441 Wear Sleeve Driver (Install)

283-9442 Wear Sleeve Driver (Remove)

SMCS Code: 6333

Model: PH 126 Hydraulic Hammer

Essential Tool

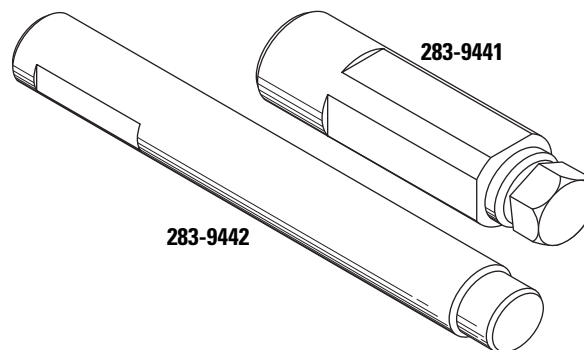
Warranty: Six Months

- Used to remove and install 275-0756 Wear Bushing in main body of hydraulic hammer
- Used with hydraulic press to remove and install bushing
- 283-9441 Driver is used to install and 283-9442 Driver is used to remove hex-shaped bushing
- Heat-treated for strength and durability
- Hex end of driver fits ID of hex bushing
- Made from alloy steel

Reference

REN6996, Hydraulic Hammer Disassembly and Assembly

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.



283-9441

283-9442

Bushing Puller Plates

SMCS Code: 6333-011
Model: H115, H120, H130, H140, H160, and H180 Hydraulic Hammers
Essential Tool
Warranty: Six Months

- Used to remove upper and lower tool bushings from hydraulic hammers
- Used with hydraulic cylinder, power pack, and threaded rod (see Service Manuals)
- Various sizes fit each model of hydraulic hammer

Reference

REN4422, Service Manual,
H140 and H160 Hammers

Part No.	Description
193-1169	Puller Plate, H140 (Upper Bushing)
193-1214	Puller Plate, H115 (Upper Bushing)
193-1217	Puller Plate, H120 (Upper Bushing)
193-1218	Puller Plate, H130 (Upper Bushing)
193-1229	Puller Plate, H160 (Upper Bushing)

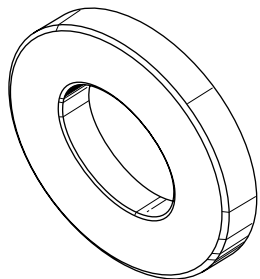
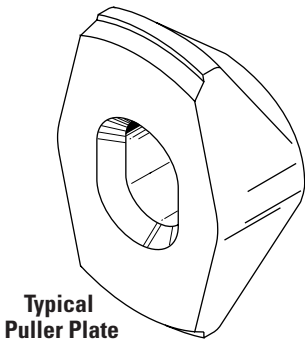
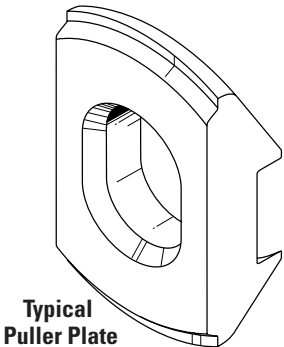
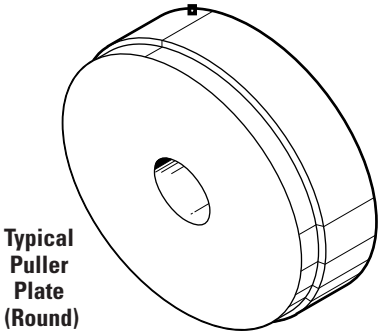
Part No.	Description
193-1230	Puller Plate, H115 (Lower Bushing)
193-1231	Puller Plate, H120 (Lower Bushing)
193-1232	Puller Plate, H130 (Lower Bushing)
193-1236	Puller Plate, H180 (Lower and Upper Bushing)

Part No.	Description
193-1233	Puller Plate, H140 (Lower Bushing)
193-1234	Puller Plate, H160 (Lower Bushing)

Part No.	Description
112-9837	Washer (all models)

*This article has changed
since the printing of the 2009
Dealer Service Tools Catalog.*

Maximum pulling capacity 27,216 kg (60,000 lb)



Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and Assembly

Motor Grader Controls,
Cable Control and Winch

Loader Lift Arm and
Excavator Implement

Implements, Frame,
Hitch and Suspension

Sleeve Driver Assemblies

293-6555 Driver Handle

SMCS Code: 6333-017

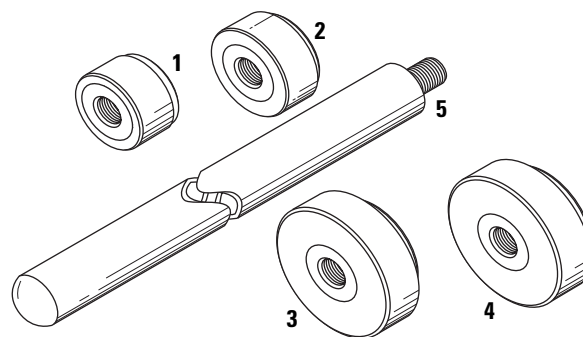
Model: H35D, H45D, H55D, and H65D Hydraulic Hammer

Essential Tool

Warranty: Six Months

NEW TOOL

- Used to remove and install piston sleeves without damage to cylinder
- Used with threaded driver handle
- Head of sleeve driver is made from nylon to eliminate scratching or damage to cylinder wall
- Threaded portion of sleeve driver is made from steel to provide extended tool life



Item	Part No.	Description	Used On	Outside Diameter
1	293-6551	Sleeve Driver	H35D	40.0 mm (1.57 in)
2	293-6552	Sleeve Driver	H45D	50.0 mm (1.97 in)
3	293-6553	Sleeve Driver	H55D	65.0 mm (2.56 in)
4	293-6554	Sleeve Driver	H65D	75.0 mm (2.95 in)
5	293-6555	Driver Handle	—	—

Reference

RENRA4478, Service Manual, Hydraulic Hammer Disassembly and Assembly

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Accumulator Tools for Hydraulic Hammer

SMCS Code: 7201-045

Model: PH 126 Hydraulic Hammer

Essential Tool

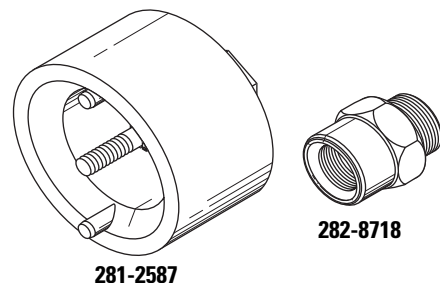
Warranty: Six Months

- Used with 121-6583 Accumulator Charging Kit

Reference

RENRA6996, Hydraulic Hammer Disassembly and Assembly

Part No.	Description	Use
281-2587	Spanner Wrench	Remove and install top cover of accumulator for servicing
282-8718	Charging Adapter	Recharge nitrogen-filled accumulator



281-2587

282-8718

FT1452 Support Bracket

SMCS Code: 7258-009

Model: 773B Trucks, 63W1-Up

Warranty: None

- Facilitates maintenance operations
- Clamped around lift cylinder rod and holds truck bed in partially raised position; with bed partially raised, there is not only sufficient room to perform service work, but also less overhead clearance is required



Body Support Brackets

SMCS Code: 7258-009

Model: 725 and 730 Articulated Trucks (FT2795)
735 and 740 Articulated Trucks (FT2787)

Essential Tool

Warranty: None

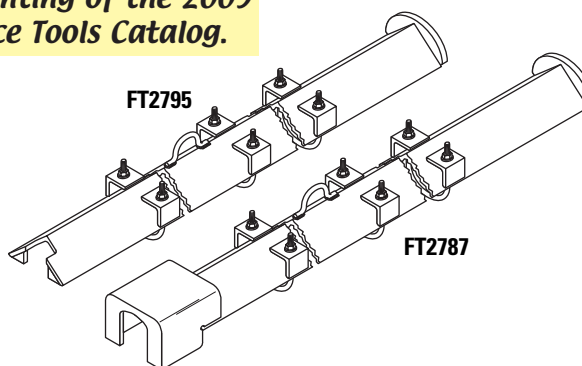
- Used to support dump body while removing the center axle
- Prevents potential injury while working under the dump body
- Easily made from common angle iron and off-the-shelf hardware

References

REN3447, Machine Systems Disassembly and Assembly for the 725/730

REN5140, Machine Systems Disassembly and Assembly for the 735/740

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.



FT3079 Bushing Installer

SMCS Code: 7113

Model: 735 Articulated Truck (AWR1-UP; BIN1-UP)
740 Articulated Truck (AXM1-UP; B1P1-UP)
740 Ejector Articulated Trucks (AZZ1-UP; B1R1-UP)

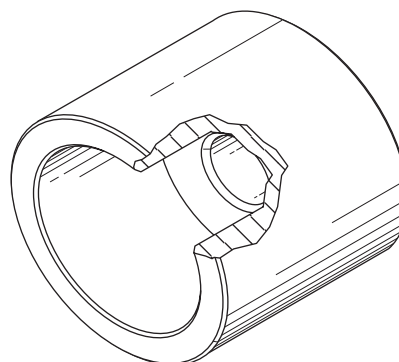
Essential Tool

Warranty: None

NEW TOOL

- Used to ensure proper installation depth on hitch pin bushings in front frame
- Used to accurately install hitch pins upper and lower boss

Used With		
Part No.	Description	Qty.
259-9239	Stud	
6V-7742	Nut	2
8T-3282	Washer	2
5P-8713	Plate	



References

Service Magazine, 3050-0009-2006

REHS3148, Special Instruction, Salvage of the Bores in the Front Frame for the Hitch Pins

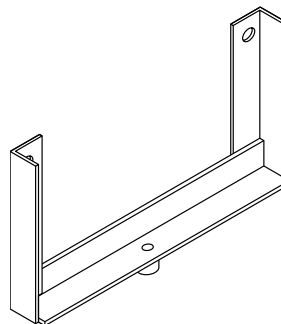
FT2617 Pump Bracket Assembly

SMCS Code: 1003-010

Model: 5130 Mass Excavator and Front Shovel

Warranty: None

- Used to provide additional support to pumps when removing or installing engine
- Prevents potential damage to pump suction lines
- Quick installation (requires only 3 bolts)
- Easily made from common angle iron
- Material: SAE 1018 steel



Reference

SEN1467, Disassembly and Assembly 3508 Engine for 5130B

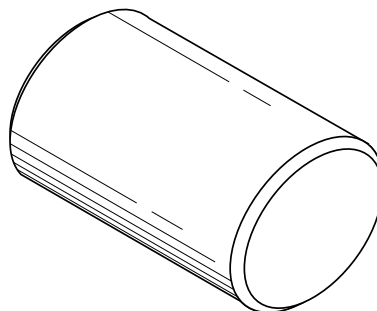
FT0964 Pilot

SMCS Code: 5102-010

Model: 773 Truck

Warranty: None

- Used to align cylinder eye with truck body brackets when installing hoist cylinders
- Material: mild steel



FT0503 Valve Insert Puller

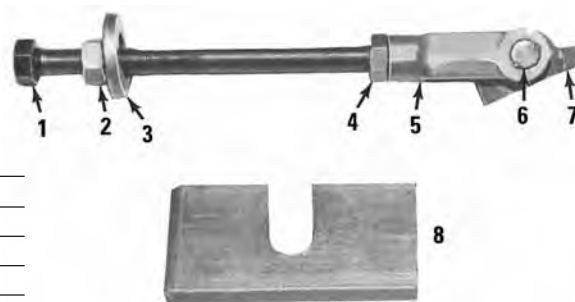
SMCS Code: 5050-011

Model: Most Caterpillar Models

Warranty: None

- Used to remove control valve inserts in some hydraulic control valves
- Material: SAE 1020 steel

Item	Part No.	Description
1	1B-2339	Bolt
2	1B-4203	Nut
3	4B-4278	Washer
4	5B-9079	Nut
5	1M-1341	Rod End
6		Rod, 11.11 mm ($\frac{7}{16}$ in)
7		Crosspiece ¹
8		Plate ¹



Tools for Minimizing Oil Loss During Hydraulic System Disassembly

SMCS Code: 5050-015

Model: Most Caterpillar Models

Warranty: Six Months

- Used to minimize oil loss when hydraulic system must be disassembled for some reason other than failure
- Several sizes of blocker plates available (Figure 2) for use in pump suction line and/or tank return line joints
- Special vacuum cap assembly, consisting of parts illustrated in Figure 1, is installed in place of hydraulic tank filler cap; by applying pressure air to 5P-0306 Vacuum Transducer, continuous vacuum is produced in tank
- With 3.5 kg/cm² (50 PSI) air pressure applied, transducer uses 4.65 CFM of compressed air and pulls 8.75 CFM of vacuum flow at 0 PSI
- Maximum of 406 mm (16 in) Hg is pulled at 5.6 kg/cm² (80 PSI) or 254 mm (10 in) Hg at 3.5 kg/cm² (50 PSI)
- For use on hydraulic systems only

Fig. 1
Special Vacuum
Cap Assembly



Item	Part No.	Description
1	5P-0306	Transducer
2	6V-4142 5K-5068	Nipple and Nipple
3	FT1114 ¹ FT1115 ¹	Cap or Cap

¹ New drawings available in 2006

Fig. 2

Item	Part No.	Description	Size
1	5P-1750	Plate	31.8 mm (1.25 in) ID line
2	5P-1751	Plate	38.1 mm (1.5 in) ID line
3	5P-1752	Plate	50.8 mm (2.0 in) ID line
4	5P-1753	Plate	63.5 mm (2.5 in) ID line
5	5P-1754	Plate	76.2 mm (3.0 in) ID line
6	5P-1755	Plate	88.9 mm (3.5 in) ID line
7	5P-1756	Plate	101.6 mm (4.0 in) ID line

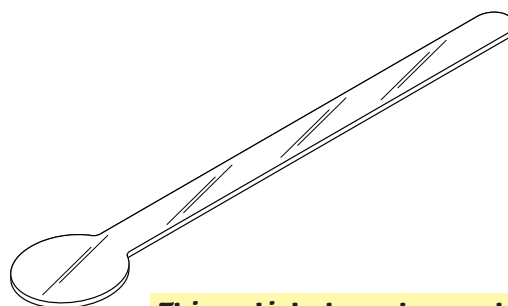
FT2810 Suction Line Blocker Plate

SMCS Code: 5104-032

Model: 980G Series II Wheel Loader

Warranty: None

- Used to perform a drift test on tilt cylinders
- Easy to install (just loosen tilt cylinder return line bolts and slide blocker plate into place)
- Installs with minimal oil loss and minimal contamination
- Make from 5P-1750 Blocker Plate
- Cut round end diameter from 50.0 mm (2.0 in) down to 45.0 mm (1.8 in)



***This article has changed
since the printing of the 2009
Dealer Service Tools Catalog.***

Reference

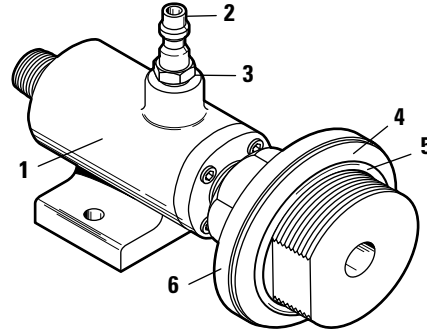
REN6018, Service Manual, Testing and Adjusting

FT2674 Vacuum Cap Assembly

SMCS Code: 5050-015
Model: B-Series Hydraulic Excavators
Warranty: None

- Used to minimize oil loss when hydraulic system is disassembled for reasons other than component failure
- Install tool in place of the hydraulic tank filler plug
- Applying air pressure to 5P-0306 Transducer creates a continuous vacuum in hydraulic tank
- Made from off-the-shelf Caterpillar parts
- With 3.5 kg/cm² (50 PSI) of air pressure applied, transducer uses 4.65 CFM of compressed air and pulls 8.75 CFM of vacuum flow at 0 kg/cm² (0 PSI)
- Maximum vacuum of 406 mm (16 in) Hg at 5.6 kg/cm² (80 PSI) or 254 mm (10 in) Hg at 3.5 kg/cm² (50 PSI)
- Hex end of 105-2652 Plug must be drilled and tapped for a 1/4-18 NPTF thread

Item	Part No.	Description
1	5P-0306	Vacuum Transducer
2	4C-7156	Quick Disconnect Nipple, 1/4 NPT Female
3	4C-7099	Hex Nipple, 1/4 x 1/8 NPT
4	6C-8496	Washer
5	095-1608	O-ring Seal
6	105-2652	Plug (modified)

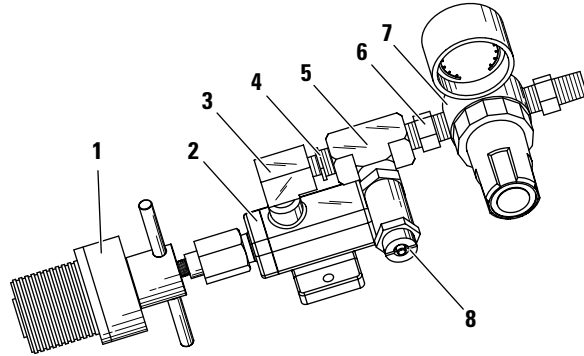


311-1362 Plug Vacuum Assembly

SMCS Code: 5050-015
Model: M-Series Motor Graders and C-Series Skid Steer Loaders
Essential Tool
Warranty: Six Months

NEW TOOL

- Used to create a vacuum within the hydraulic tank and hydraulic system (minimizes oil loss during repairs)
- Used with shop air supply
- Used when hydraulic system is disassembled for reasons other than component failure
- Applying air pressure to transducer creates a continuous vacuum in hydraulic system
- Used at maximum pressure of 138 kPa (20 PSI) to prevent damage to hydraulic tank
- Install tool in place of hydraulic tank filler plug
- Requires a dealer-supplied 1/4 inch NPT adapter to connect air supply



Item	Part No.	Description
1	308-6636	Plug Assembly
2	5P-0306	Vacuum Transducer
3	3B-6552	Pipe Elbow
4	6K-1019	Pipe Nipple
5	3B-7762	Tee Fitting
6	5P-8998	Pipe Nipple
7	4C-8852	Regulator
8	—	Safety Valve (not serviced separately)

FT0965 Cylinder Support

SMCS Code: 5050-010
Model: 773 Truck
Warranty: None

- Installed over hoist cylinders as protective measure when removing transmission or performing other major service work under truck body



Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

Implements, Frame, Hitch and Suspension

FT0649 Yoke Adapter

SMCS Code: 5050-010

Model: Most Caterpillar Models

Warranty: None

- Used to mount hydraulic cylinders which do not have rod eyes to end post of repair stand
- One end of adapter has holes and slots to fit many different cylinders; other end has boss with tapered hole which fits cylinders with ball stud pivot



FT1631 Flare Nut Wrench

SMCS Code: 5050-010

Model: 814B Tractor; 815B and 816B Compactors

Warranty: None

- Allows easier removal and installation of tube assembly in right bulldozer lift circuit
- Connector between lift tube assembly and hydraulic control valve is difficult to tighten or loosen with standard wrench because of its location
- Can be fabricated from Snap-On RX48 Flare Nut Wrench 38.1 mm (1 1/2 in) or any similar wrench with handle bent at 90° angle
- Drawing includes instructions for bending handle



FT2789 Plug Installer

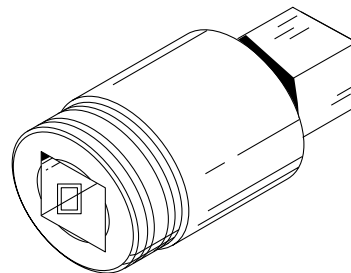
SMCS Code: 5050-010

Model: 5110B Front Shovel/Mass Excavator

Essential Tool

Warranty: None

- Used to remove heater port plug from bottom of hydraulic tank to install a cold weather, hydraulic oil heating element
- Made from 2P-8261 3/4 to 1 inch Adapter (simply grind 1 inch square drive to 7/8 inch)
- Grinding dimensions for male end: 22.0 mm (0.87 in)



FT1308 Peening Device

SMCS Code: 7206-010, 4158-010, 4158-011, 4158-012, 4158-017, 4050-016, 7106-011

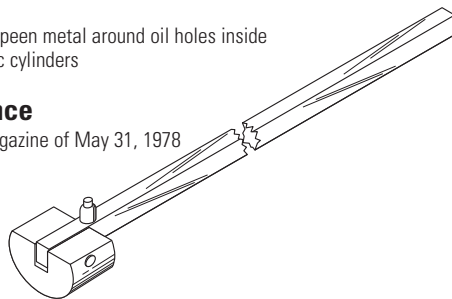
Model: D10, D11N, D6H, D7H, D8L, D8N, D9N, 589

Warranty: None

- Used topeen metal around oil holes inside hydraulic cylinders

Reference

Service Magazine of May 31, 1978



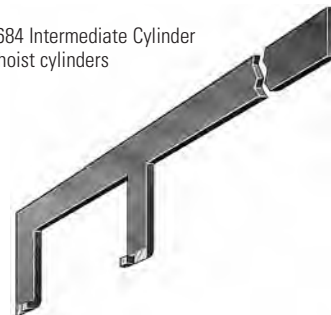
FT0624 Cylinder Spanner Wrench

SMCS Code: 5050-010

Model: 769A Truck

Warranty: None

- Used for turning 5J-4684 Intermediate Cylinder Gland on 769A Truck hoist cylinders



6V-3155 Brace Assembly

SMCS Code: 3260-010, 5050-010

Model: 943, 953 to 953D Track Loaders

Warranty: Six Months

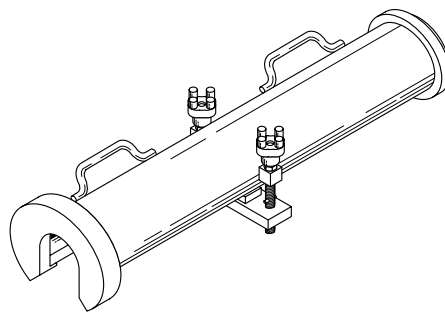
- Should be used on lift cylinder to support lift arms during repair work
- Made from high strength alloy steel
- Has bar to hold it to extended lift cylinder rod
- Only 1 brace needed to hold lift arms in raised position



236-1192 Lift Cylinder Brace Assembly

Model: 963 and 973 Track-Type Loaders
Warranty: Six Months

- Used to support weight of linkage arms and loader bucket, in raised position, during machine maintenance and repair
- Prevents lift arms and bucket from lowering due to an accidental loss of hydraulic pressure
- Made from high-strength alloy steel
- Only 1 brace assembly required
- Built-in cross bar keeps brace assembly attached to cylinder rod



Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

Motor Grader Controls, Cable Control and Winch

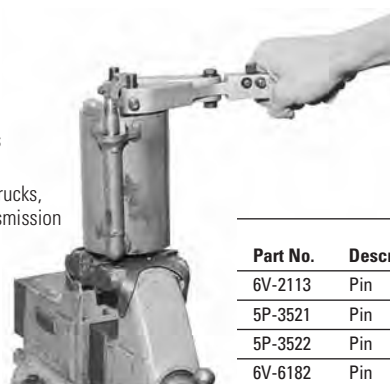
Loader Lift Arm and Excavator Implement

Implements, Frame, Hitch and Suspension

5P-3520 Cylinder Spanner Wrench

SMCS Code: 5050-010, 3258-017
Model: Most Caterpillar Models
Warranty: Six Months

- Used with two 6V-6182 Pins to remove head retaining wire from servo cylinders for hydrostatic transmissions (pin can also be used in other applications)
- Use for the alignment, installation or removal of the cylinder gland nuts on lift trucks, the removal of head retaining wire from the servo cylinders for hydrostatic transmission
- Can also be used for general purpose application using pin hole spacings of 25.4 to 177.8 mm (1 to 7 in)
- 19.05 mm (¾ in) diameter handle allows the use of wrench extension handles, such as the 5P-8675 Extension Handle
- 5P-3523 Screw
- Chart lists all pins for 5P-3520 Cylinder Spanner Wrench



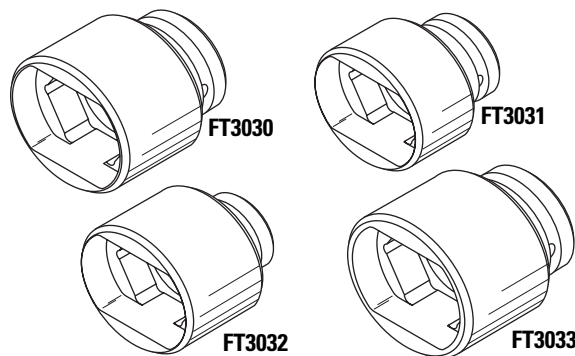
Part No.	Description	Diameter of Large End	Diameter of Small End
6V-2113	Pin	4.66 mm (0.183 in)	3.06 mm (0.12 in)
5P-3521	Pin	6.24 mm (0.245 in)	4.64 mm (0.182 in)
5P-3522	Pin	9.41 mm (0.37 in)	7.81 mm (0.307 in)
6V-6182	Pin	11.08 mm (0.436 in)	6.96 mm (0.274 in)

Spanner Sockets

SMCS Code: 7562
Model: All SSL and MTL Skid Steer Loaders
Warranty: None

NEW TOOL

- Used to tighten cylinder piston to proper torque
- Used with ¾ and 1 in square drive torque wrench (do not use with impact wrench)
- Requires special tool to properly remove and install piston
- Used on loader lift and tilt cylinder pistons
- Made from Caterpillar impact sockets



References

REN2626; 216, 226 SSL Skid Steer Disassembly and Assembly
REN4855; 247, 257 MTL Skid Steer Disassembly and Assembly
REN4878; 2247B, 257B MTL Skid Steer Disassembly and Assembly

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

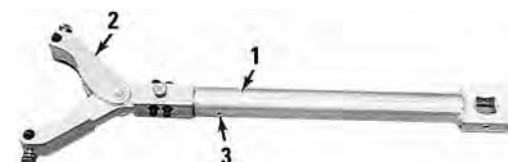
Part No.	Size	Length	Drive Size	Socket
FT3030	36 mm (1.41 in)	57.2 mm (2.25 in)	¾ in	9U-6539
FT3031	46 mm (1.81 in)	66.7 mm (2.63 in)	¾ in	9U-6545
FT3032	50 mm (1.96 in)	73.2 mm (2.88 in)	¾ in	9U-6546
FT3033	53.97 mm 2 1/8 in	82.6 mm (3.25 in)	1 in	9U-6570

5P-8675 Extension Handle for 5P-3520 Cylinder Spanner Wrench

Warranty: Six Months

- Provides a ¾ in drive handle for the 5P-3520 Spanner Wrench
- Reading will be half the applied torque if 9S-7352 Torque Wrench is combined with the 5P-3520 Spanner Wrench and the 5P-8675 Extension Handle

Item	Part No.	Description
1	5P-8675	Extension Handle
2	5P-3520	Cylinder Spanner Wrench
3	6H-3956	Spring Pin



Ejector Cylinder Service Parts

SMCS Code: 5100-010

Model: D400E II, 730, and 740 Articulated Truck with Ejector Cylinder
Essential Tool

Warranty: Six Months

- Used to disassemble and assemble ejector cylinder

*This article has changed
since the printing of the 2009
Dealer Service Tools Catalog.*

Part No.	Description	Model
205-7845	Seal Installer Guide Group	D400E, 740
297-2794	Seal Installer Guide Group	730
213-1818	Ring Expander Group	D400E, 740
5F-9059	Ring Expander Group	730
346-8394	Fit Up Aid Group	D400E, 740, 730
213-5138	Oil Tube Guide Group	D400E, 740, 730
209-6756	Cylinder Rod Clamp Assembly	D400E, 740, 730
297-2791	Rod Adapter Assembly	730
212-8165	Stop Clamp Assembly	D400E, 740
297-2792	Stop Clamp Assembly	730
209-6757	Adjustable Clamp Assembly	D400E, 740
297-2793	Adjustable Clamp Assembly	730
8T-4986	Hose Clamp	730
8C-4810	Wear Ring	730
8T-4987	Hose Clamp	D400E, 740, 730
8C-9112	Wear Ring	D400E, 740, 730
3E-7424	Hose Clamp	D400E, 740, 730
8C-4832	Wear Ring	D400E, 740, 730
8T-4989	Hose Clamp	D400E, 740
1U-2218	Wear Ring	D400E, 740
8T-4990	Hose Clamp	D400E, 740
6E-0248	Wear Ring	D400E, 740

205-7845 Ejector Cylinder Seal Installer Guide Group

SMCS Code: 5146-012

Model: D400E, 730, and 740 Articulated Trucks

Essential Tool

Warranty: Six Months

- Used to protect the seals while assembling the load ejector cylinders
- Seal guides have a 30° chamfer angle for optimum installation

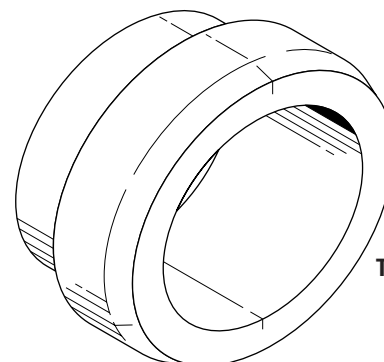
References

REN5140, Machine Systems Disassembly and Assembly, 740

REN3461, Machine Systems Disassembly and Assembly, D400E

Part No.	Description	Outside Diameter	Model
193-3955 ¹	Ejector Cylinder Seal Guide	128.0 mm (5.04 in)	D400E, 730, 740
193-3958	Ejector Cylinder Seal Guide	152.0 mm (5.98 in)	D400E, 730, 740
193-3959	Ejector Cylinder Seal Guide	180.0 mm (7.09 in)	D400E, 740
193-3960	Ejector Cylinder Seal Guide	212.0 mm (8.34 in)	D400E, 740
Sold Separately			
297-2794	Ejector Cylinder Seal Guide	104.7 mm (4.12 in)	730

¹ May be used on the 730 Ejector Cylinder. However, a 0.94 mm (0.037 in) thick spacer is needed.



Typical
Seal
Guide

*This article has changed
since the printing of the 2009
Dealer Service Tools Catalog.*

213-1818 Ring Expander Group

SMCS Code: 5486-017

Model: D400E Series II, 730, and 740 Articulated Trucks

Warranty: Six Months

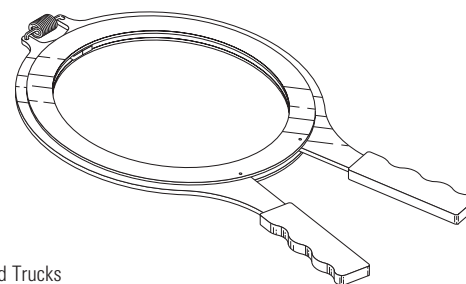
- Used to remove and install seal rings on load ejector cylinders
- Expands the seal ring to eliminate possible scratching of the cylinder surface.

References

REN5140, Machine Systems Disassembly and Assembly for 740 Articulated Trucks

REN3461, Machine Systems Disassembly and Assembly for the D400E Series II Articulated Trucks

Part No.	Description	Inside Diameter	Model	Service/Repair Parts	
211-9306	Ring Expander	137.5 mm (5.41 in)	D400E, 730, 740	3B-9762	Spring
211-9323	Ring Expander	161.5 mm (6.36 in)	D400E, 730, 740	3C-8388	Roll Pin
213-1810	Ring Expander	190.0 mm (7.48 in)	D400E, 740		
213-1812	Ring Expander	222.0 mm (8.74 in)	D400E, 740		
Sold Separately					
5F-9059	Ring Expander	114.3 mm (4.5 in)	730		



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since the printing of the 2009
Dealer Service Tools Catalog.*

297-2791 Rod Adapter Assembly 209-6756 Cylinder Rod Clamp Assembly

SMCS Code: 5486-017

Model: D400E Series II, 730, and 740 Articulated Dump Trucks

Warranty: Six Months

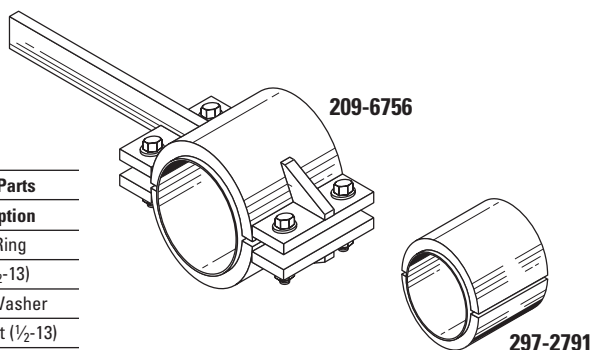
209-6756

- Used to hold fourth stage piston rod while removing or installing rod-eye
- Helps eliminate potential damage to fourth stage cylinder rod
- Clamps directly onto cylinder rod
- Reacts against hydraulic cylinder bench when removing or installing rod-eye

297-2791

- Sold separately for 730 Articulated Dump Truck
- Use with 209-6756 Cylinder Rod Clamp Assembly
- Use 8T-3330 Wear Ring (2) with 297-2791 Rod Adapter Assembly

Service/Repair Parts	
Part No.	Description
8T-3331	Wear Ring
9S-1366	Bolt (1/2-13)
5P-8245	Hard Washer
1F-7958	Full Nut (1/2-13)



References

REN5140, Machine Systems Disassembly and Assembly for 740 Articulated Dump Truck

REN3461, Machine Systems Disassembly and Assembly for D400E Series II Articulated Dump Truck

Adjustable Clamp and Stop Clamp Assemblies

SMCS Code: 5486-017

Model: D400E Series II, 730, and 740 Articulated Dump Truck

Warranty: Six Months

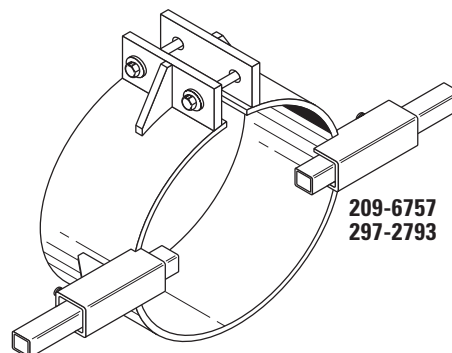
- Used to disassemble and assemble load ejector cylinder
- Makes disassembly and assembly operation into a 1-man job

209-6757 and 297-2793 Adjustable Clamp Assemblies

- Prevents cylinder sections from sliding during disassembly and assembly
- Easily adjustable clamp for holding each cylinder stage

212-8165 and 297-2792 Stop Clamp Assemblies

- Keeps first stage cylinder rod in position during disassembly and assembly



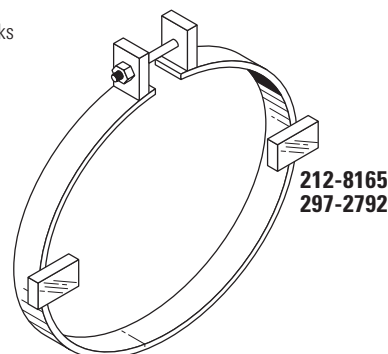
References

REN5140, Machine Systems Disassembly and Assembly for 740 Articulated Dump Truck

REN3461, Machine Systems Disassembly and Assembly for D400E Series II Articulated Dump Trucks

Service/Repair Parts		
Part No.	Description	Model
209-6757		
0L-1329	Bolt (1/2-13)	D400E, 740
1F-7958	Full Nut (1/2-13)	D400E, 740
4B-4994	Setscrew (3/8-16)	D400E, 740
5P-8245	Hard Washer	D400E, 740
9S-8752	Full Nut (3/8-16)	D400E, 740
297-2793		
9K-2429	Bolt (7/16-14)	730
3S-1546	Full Nut (7/16-14)	730
4B-4994	Setscrew (3/8-16)	730
7X-0599	Washer	730
9S-8752	Full Nut (3/8-16)	730

Service/Repair Parts		
Part No.	Description	Model
212-8165		
0T-0573	Bolt (3/8-16)	D400E, 740
9S-8752	Full Nut (3/8-16)	D400E, 740
297-2792		
1M-0644	Bolt (3/8-16)	730
9S-8752	Full Nut (3/8-16)	730



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Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

Implements, Frame, Hitch and Suspension

213-5138 Oil Tube Guide Group

SMCS Code: 5100-016

Model: D400E, 730, and 740 Articulated Trucks with Load Ejector Cylinder

Essential Tool

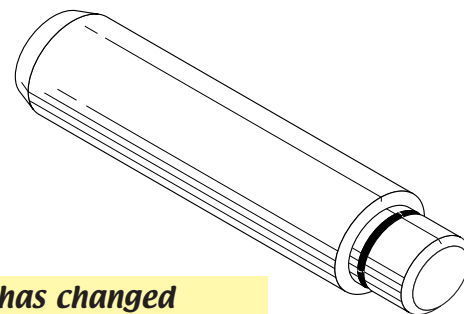
Warranty: Six Months

- Used to install oil tube/rod eye into fourth stage piston
- Provides smooth installation and prevents damage to oil tube
- Helps prevent O-ring, located inside piston, from being cut
- Made from durable plastic
- Service part: 095-1696 O-ring

References

REN5140, Machine Systems Disassembly and Assembly (740)

REN3461, Machine Systems Disassembly and Assembly (D400E)



This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Threaded Gland Cylinder Tools

SMCS Code: 5456-017

Model: All Models with Hydraulic Cylinders

Warranty: Six Months

Spanner Wrench Assemblies

- Used to remove and install threaded gland heads on hydraulic cylinders
- Spanner wrench virtually eliminates chance of disengagement when removing or installing gland
- Eliminates damage to gland caused by hammering, welding, or other destructive means of gland removal
- Designed to pilot around cylinder rod (fits most sizes of cylinder rods)
- 2 wrench sizes for convenience: 9U-7868 for 25 to 80 mm (1.0 to 3.2 in) rod diameter and 9U-7869 for 76 to 115 mm (3.0 to 4.5 in) rod diameter
- Spanner wrench is held in place with cover and 6 adjustable screws (can be tightened so wrench will not disengage even when rod is at a downward angle)
- Screws are fitted with nylon pads to protect cylinder rod (screws also center wrench on rod, making installation and removal on gland much faster and easier)
- Handle is heat-treated for additional strength, and wrench body is zinc-plated to prevent rusting
- Used with 5S-6090 Sliding Tee-Wrench Head, 5S-6089 Handle, 8T-9294 Torque Wrench, or equivalent, 2P-8261 19.05 to 25.4 mm (¾ to 1 in) Adapter, hydraulic cylinder repair stand, and universal-position adapter plates

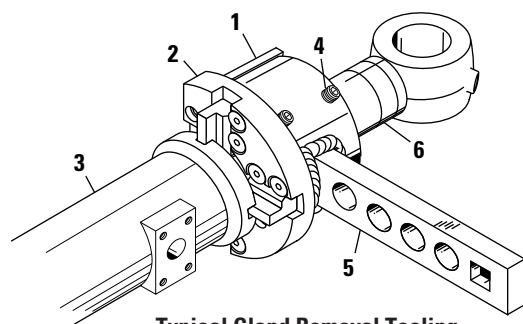
References

NEHS0629, Tool Operating Manual, Using the 9U-7868 and 9U-7869 Cylinder Spanner Wrench

NEHS0627, Tool Operating Manual, 1U-9001 and 1U-9002 Automatic Honing Tooling

SEHS9538, Tool Operating Manual, Using the 9U-6463 Hone Group and Attachments

NEHC2004, Major Equipment Guide, Hydraulic Cylinder Repair Stands



Typical Gland Removal Tooling

Universal-Position Adapter Plates

- 4 universal-position adapter plates work on any gland, within size range, having slots or holes in face and/or flats on outside diameter
- Minimum storage space is required compared to other types of tooling
- Universal-position adapter plates may also be used on cylinders other than Caterpillar cylinders

Using universal-position adapters will eliminate need for fixed-position adapters when servicing threaded gland cylinders

Pin/Key Group

- Used with the 127-8064 Universal Adapter Plate Group
- Pin/key group is used on glands with pin holes located in the face of the gland
- Assortment of pin sizes are provided to fit various sized holes in the face of the gland
- Keys can easily be adjusted to fit various hole patterns in the face of the gland
- Pins are stored in the keys to help prevent the pins from being lost

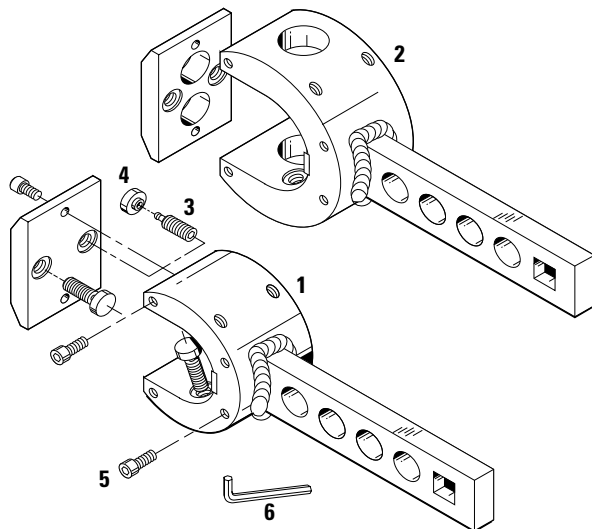
NOTE: Cylinder barrels should be honed before assembling new parts into cylinder.

Item	Description
1	Locking Plate
2	Universal-Position Adapter Plate
3	Cylinder
4	Swivel Screws
5	Spanner Wrench
6	Cylinder Rod

Vehicle System Tools

Part No.	Description	Inside Diameter (adjustable)	Width	Overall Size	Length ¹	Square Drive	Weight (typical with plate)
9U-7868	Cylinder Spanner Wrench	25.0 - 80.0 mm (1.0 - 3.2 in)	101 mm (4 in)	377 mm (14.9 in)	304 mm (12 in)	1 in	13.6 kg (30 lb)
9U-7869	Cylinder Spanner Wrench	76.0 - 115.0 mm (3.0 - 4.5 in)	101 mm (4 in)	396 mm (15.6 in)	304 mm (12 in)	1 in	16 kg (35 lb)

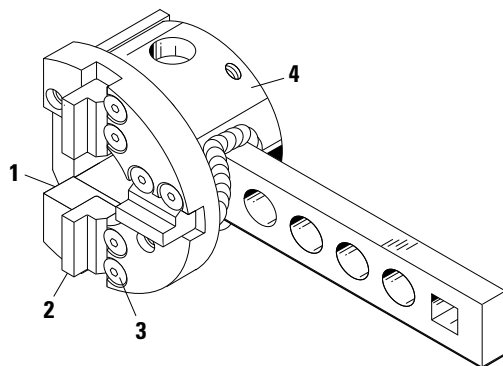
¹ Centerline of square drive to centerline of bore



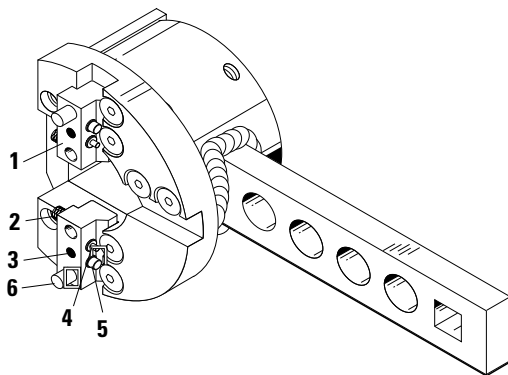
Item	Part No.	Description
1	9U-7868	Cylinder Spanner Wrench (fits 25 - 80 mm [1.0 - 3.2 in] rod diameter)
2	9U-7869	Cylinder Spanner Wrench (fits 76 - 115 mm [3.0 - 4.5 in] rod diameter)
3	9U-7870	Swivel Screw Body
4	121-8872	Swivel Screw Foot
5	9X-6032	Hex Socket Bolt (M10 x 1.5 x 30 mm [1.18 in] long)
6	1U-7566	Hex Wrench

Universal-Position Adapter Plates

Using universal-position adapters will eliminate need for fixed-position adapters when servicing threaded gland cylinders



Item	Part No.	Description
1	204-6213	Adjustable Adapter Plate
Additional Tooling Required		
2.	127-8066	Key, 12.5 mm (0.50 in) wide
	127-8067	Key, 9.5 mm (0.38 in) wide
	127-8068	Key, 6.5 mm (0.25 in) wide
	130-1810	Pin/Key Group
3	6V-7726	Screw
4	9U-7869	Cylinder Spanner Wrench (fits 76 - 115 mm rod diameter)



130-1810 Pin/Key Group

This pin/key group is used to remove glands with holes machined in the face.

Item	Part No.	Description
1	130-1811	Key
2	5P-3523	Retaining Screw
3		Plug (make from a 1M-3097 Toric Sealing Ring)
4	5P-3521	Pin, 4.64 and 6.24 mm (0.183 and 0.246 in)
5	5P-3522	Pin, 7.81 and 9.41 mm (0.307 and 0.370 in)
6	130-3856	Pin, 6.96 and 11.08 mm (0.274 and 0.436 in)
Additional Required Tooling (not part of group)		
	9U-7868	Cylinder Spanner Wrench
	127-8064	Adjustable Adapter Plate Group

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Brake and Steering Systems

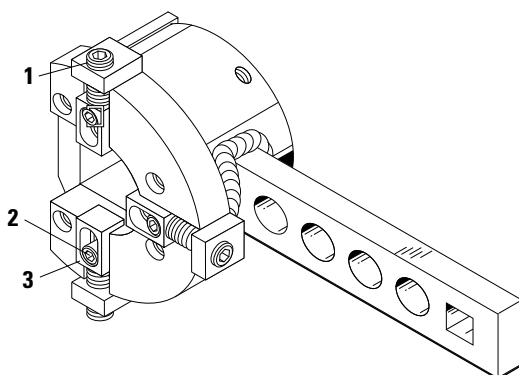
Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

Motor Grader Controls, Cable Control and Winch

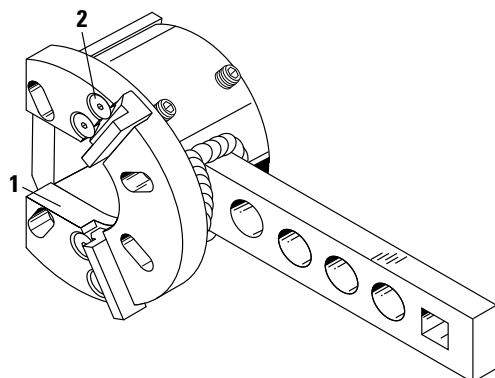
Loader Lift Arm and Excavator Implement

Implements, Frame, Hitch and Suspension



127-8069 Adapter Plate Group
This adapter plate is used on glands
with 80 to 116 mm (3.1 to 4.5 in) across flats.

Item	Part No.	Description
1	—	Setscrew
2	9X-6032	Socket Head Bolt
3	127-8071	Key
Additional Required Tooling (not part of group)		
	9U-7868	Cylinder Spanner Wrench



162-7189 Adjustable Adapter Plate Group (120°)
This adapter plate is used on glands with slots
machined in the face.

Item	Part No.	Description
1	162-7189	Plate Adapter Group ¹
2	6V-7726	Screw
Additional Required Tooling (not part of group)		
	9U-7868	Cylinder Spanner Wrench
	9U-7869	Cylinder Spanner Wrench
	127-8066	Key ² , 12.5 mm (0.50 in) wide
	127-8067	Key ² , 9.5 mm (0.38 in) wide
	127-8068	Key ² , 6.5 mm (0.25 in) wide

¹ Plate adapter fits both 9U-7868 and 9U-7869
Cylinder Spanner Wrenches

² Keys from 127-8064 can be used with this plate

Universal-Position and Fixed-Position Adapter Plate Specifications

Adapter Plate Usage

Chart A will help determine which wrench matches a specific gland. The chart includes a list of each available adapter, the part number of the threaded gland, and the model number of the machine. Use Chart A to select the adapter plate required for disassembly of the cylinder.

Chart A —Universal-Position and Fixed-Position Adapter Plate Usage

Universal-Position Adapter Plate Part No.	Fixed-Position Adapter Plate Part No.	Threaded Gland Head Part No.	Model
162-7189	9U-7872	6I-6835 099-0596	Excavators: 307B, 311, 311B, 312, 312B, 313B, 315B, 317B, 320, 320B,
127-8064	9U-7873	6E-0775 6E-1501 6E-1816 6E-4976 6E-4978 ¹ 9T-2822 9T-6388 ¹	Ag Tractors: 65, 65C, 70C, 75, 75C, 85C Backhoe Loaders: 416, 416B, 426, 426B, 428B, 436, 436B, 438, 438B, 446, 446B Construction & Mining Trucks: 768C, 769C, 771C, 772, 772B, 773B, 775B, 776, 776B, 776C, 777, 777B, 777C Excavators: 350, 375 Integrated Toolcarriers: IT18F, IT28F Motor Graders: 14G, 14H, 16G, 16H Track-Type Tractors: D3C, D4C, D5H, D6H, D7H, D8N, D9N, D10N, D11N Wheel Loaders: 950F, 966D, 966F, 970F Wheel Tractors-Soil/Landfill Compactors: 814B, 815B, 816B
162-7189	9U-7874	099-0668 ¹	Excavators: 307, 311, 311B, 312, 312B, 313B
162-7189	9U-7875	099-0686 ¹	Excavators: 312, 312B, 313B
127-8064	9U-7876	6E-0277 ¹ 6E-1113 ¹ 6E-1405 6E-1943 6E-1953 ¹ 6E-3570 6E-5406 ¹ 9T-3609 ¹ 9T-8080 ¹	Backhoe Loaders: 416B, 426B, 428B, 436B, 438B Integrated Toolcarriers: IT18F, IT24F, IT28F Motor Graders: 14G, 14H, 16G, 16H Track-Type Tractors: D5H, D8N Track Loaders: 953, 953B Wheel Loaders: 910E, 918F, 928F, 936F, 938F, 950F, 980C, 980F Elevating Scrapers: 615C

¹ Discontinued

² Not serviced

***This article has changed
since the printing of the 2009
Dealer Service Tools Catalog.***

Universal-Position Adapter Plate Part No.	Fixed-Position Adapter Plate Part No.	Threaded Gland Head Part No.	Model
—	9U-7877	2U-7390 ¹ 2U-7690 ¹ 6U-4157 ¹ 7U-1775 ¹ 7U-2661 ¹ 7U-6038 ¹ 7U-7867 ¹ 104-4971	Articulated Trucks: D25C, D25D, D30C, D30D, D40D, D350C, D350D, D400, D400D
—	226-5755	—	152-7037 ² Articulated Truck: D400E, 740 (ejector cylinder)
127-8064 and 130-1810	123-0389	104-9657 8C-9356 8C-9436	Grapple Arrangements for the following models: Skidders: 518, 518C Track Skidders: D4H, D5H
127-8064 and 130-1810	123-0390	105-9121	Grapple Arrangement for the following model: Skidders: 530B
127-8064 and 130-1810	123-0391	105-7738 105-9099 ¹	Grapple Arrangement for the following model: Skidders: 530B
162-7189	123-3802	099-7009	Excavator: 307
162-7189	123-3803	085-7990	Excavator: 307

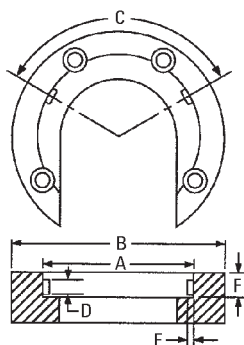
¹ Discontinued

² Not serviced

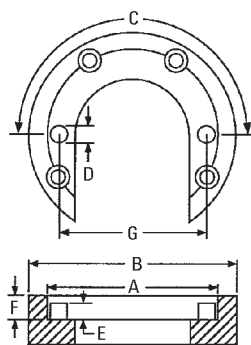
Adapter Plate Specifications

Chart B can be used to identify adapter plates or to determine if an adapter plate can be used on a gland not listed in Chart A. There are 3 styles of adapter plates, as shown in the illustrations.

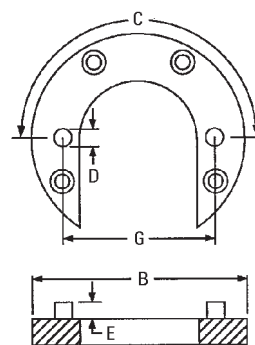
Style "A" Adapter Plate	Pins engage radially; counterbore surrounds outside diameter of gland
Style "B" Adapter Plate	Pins engage axially; counterbore surrounds outside diameter of gland
Style "C" Adapter Plate	Pins engage axially; no counterbore; plate and gland faces contact each other



Style "A" Adapter Plate



Style "B" Adapter Plate



Style "C" Adapter Plate

Chart B — Adapter Plate Specifications

Adapter Plate Part No.	Adapter Style	C'Bore Diameter "A" mm (in)	Outside Diameter "B" mm (in)	Angle Between Pins "C"	Pin Diameter "D" mm (in)	Pin Height "E" mm (in)	Depth of C'Bore "F" mm (in)	Pin Spacing "G" mm (in)
9U-7872	Style A ¹	123.0 (4.84)	160.0 (6.30)	120°	11.1 (0.44)	5.0 (0.20)	16.0 (0.63)	—
9U-7873	Style B ¹	132.0 (5.20)	152.4 (6.00)	180°	12.7 (0.50)	12.8 (0.50)	19.1 (0.75)	110.0 (4.37)
9U-7874	Style A ¹	133.0 (5.24)	170.0 (6.69)	120°	11.1 (0.44)	5.0 (0.20)	16.0 (0.63)	—
9U-7875	Style A ¹	143.0 (5.63)	180.0 (7.09)	120°	11.1 (0.44)	5.0 (0.20)	16.0 (0.63)	—
9U-7876	Style B ¹	156.5 (6.16)	177.0 (6.97)	180°	12.7 (0.50)	12.8 (0.50)	19.1 (0.75)	130.0 (5.12)
9U-7877	Style A ²	140.0 (5.51)	190.5 (7.50)	180°	15.7 (0.62)	9.0 (0.35)	19.1 (0.75)	—
123-0389	Style C ¹	None	152.4 (6.00)	180°	7.9 (0.31)	8.7 (0.34)	None	85.7 (3.37)
123-0390	Style C ¹	None	152.4 (6.00)	180°	7.9 (0.31)	8.7 (0.34)	None	101.6 (4.00)
123-0391	Style C ¹	None	152.4 (6.00)	180°	7.9 (0.31)	8.7 (0.34)	None	114.3 (4.50)
123-3802	Style A ¹	108.0 (4.25)	155.0 (6.10)	120°	11.1 (0.44)	5.0 (0.20)	16.0 (0.63)	—
123-3803	Style A ¹	118.0 (4.65)	155.0 (6.10)	120°	11.1 (0.44)	5.0 (0.20)	16.0 (0.63)	—
226-5755	Style B ¹	61.9 (2.44)	152.2 (6.00)	180°	8.0 (0.31)	6.35 (0.25)	6.35 (0.25)	48.0 (1.89)

¹ Use with 9U-7868 Cylinder Spanner Wrench

² Use with 9U-7869 Cylinder Spanner Wrench

Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

Implements, Frame, Hitch and Suspension

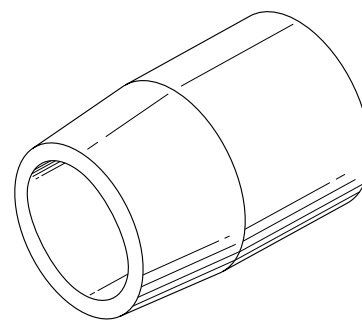
226-5756 Seal Guide

SMCS Code: 5107-017

Model: 740 Ejector Articulated Truck and D400E Articulated Truck

Warranty: Six Months

- Used to cover threads on end of rod assembly during assembly process
- Protect seals from damage as rod assembly is pushed through gland (improves quality of service repair)
- Made of light-weight nylon for faster, easier assembly
- Resists nicks and scratches better than steel guides, providing extended tool life



Reference

REN5176, 740 Load Ejector Machine System (Supplement)

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Cylinder Spanner Wrenches

SMCS Code: 5102-017

Model: 769C, 771C, 773B, 775B, 776B, 777C, 777B, 785, 785B, 789, 789B, 793, 793B Off-Highway Trucks

Warranty: Six Months

- Used to remove and install intermediate cylinder heads in off-highway truck lift cylinders
- Used with 1½ inch socket and ratchet, breaker bar, or torque wrench
- Each wrench fits a specific cylinder head
- Piloting tube provides positive, non-slip, spanner pin engagement
- Designed with replaceable spanner pins — light press fit enables replacement if required

Service/Repair Parts	
Part No.	Description
3H-0703	Dowel, 6.19 mm (1/4 in) diameter
5B-5821	Pin, 9.37 mm (3/8 in) diameter

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.



Item	Part No.	Description	No. of Pins	Pin Diameter	Pin Spacing	Pilot Tube Outside Diameter	Head Part No.	Model
1	9U-7431	Cylinder Spanner Wrench	2	6.19 mm (0.25 in)	140.0 mm (5.51 in)	101.06 mm (3.979 in)	9T-6879	769C and 771C
2	9U-7432	Cylinder Spanner Wrench	2	6.19 mm (0.25 in)	162.0 mm (6.38 in)	126.43 mm (4.978 in)	9T-6882	773B and 775B
3	9U-7433	Cylinder Spanner Wrench	4	9.37 mm (0.375 in)	176.0 mm (6.93 in)	139.13 mm (5.478 in)	9T-6885	776B, 777B, and 777C
4	9U-7434	Cylinder Spanner Wrench	4	9.37 mm (0.375 in)	222.25 mm (8.75 in)	183.58 mm (7.228 in)	6E-6444 and 6E-6485 9T-6351 ¹	785, 785B, 789, and 789B 785 and 789
	9U-7435	Cylinder Spanner Wrench	4	6.19 mm (0.25 in)	222.25 mm (8.75 in)	183.58 mm (7.228 in)		
5	9U-7436	Cylinder Spanner Wrench	4	9.37 mm (0.375 in)	262.0 mm (10.31 in)	221.68 mm (8.728 in)	6E-6609	793 and 793B
	9U-7437	Cylinder Spanner Wrench	4	6.19 mm (0.25 in)	262.0 mm (10.31 in)	221.68 mm (8.728 in)	6E-0054 ¹	793

¹ Discontinued

1U-7042 Locknut Spanner Wrench

SMCS Code: 5050-010

Model: 140G Motor Grader

Warranty: Six Months

- Required to adjust 5T-1428 Bearing Locknut [136.5 mm (5½ in) outside diameter] during assembly of optional front wheel drive hydraulic motors
- Has ½ inch square drive; can be used with 9S-7353 or 6V-7915 Torque Wrenches
- Slide rule type torque computer, SEHS7150, can be used to determine torque wrench reading for different extensions
- Service Part: 1J-2198 Pin

324-3723 Spanner Socket

SMCS Code: 5112

Model: 511, 521, 522, 532, 541, 551, and 552 Feller Buncher
with 305-3742 Gear Reduction Group (**not serviced**)

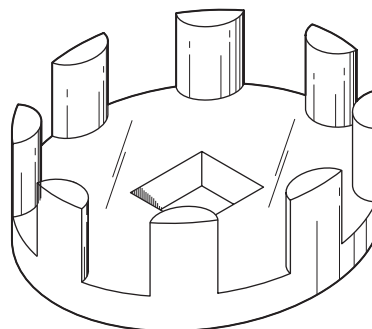
Warranty: Six Months

NEW TOOL

- Used to easily remove and install 303-4212 Locknut on 305-3742 Gear Reduction Group (**not serviced**)
- Used with 3/4 inch square drive ratchet, breaker bar, or torque wrench
- Durable steel construction

Outside diameter	76.75 mm (3.02 in)
Overall height	30 mm (1.18 in)
Square drive	3/4 in
Number of teeth	eight (evenly spaced)
Tooth height	20 mm (.79 in)
Tooth diameter	14.3 mm (.56 in)

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.



Reference

Feller Buncher Disassembly and Assembly Manuals that include 306-2065 Tilt Arrangement

FT2790 Socket Assembly

SMCS Code: 3204-010

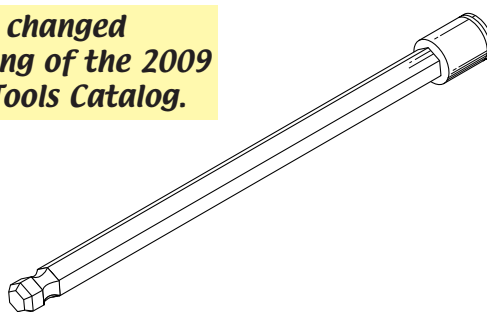
Model: 143H and 163H Motor Grader

Essential Tool

Warranty: None

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

- Used to remove and install all wheel drive charge pump motor bolts
- Made from 194-3545 Socket (remove existing Allen wrench)
- Allen wrench blade can be ordered from McMaster Carr, part number 6972A56, and cut to a length of 152.4 mm (6 in)
- Allen wrench blade should be silver soldered into socket



Reference

REN4138, Service Manual, 143H and 163H Motor Grader, Engine Supplement Disassembly and Assembly

Service Tools for 20 and 25 Series Tyrone Pumps

SMCS Code: 5050-010

Model: 20 and 25, Series Tyrone Pumps

Warranty: Six Months

- Used to remove and install sleeve bearings; sleeve bearings serviced separately
- The following tool lists are for either single or tandem version pumps manufactured after 1979; pumps produced before 1979 require different bearing installing tools because stake location varies
- Because Tyrone pumps do not have date codes, measure stake location dimension in housing and refer to Chart A to determine which staking sleeve is needed
- Tools for non-current pumps are fabricated tools (FT) because there are fewer older pumps than current pumps

Reference

SEHS8428, Special Instruction, complete repair procedure for Tyrone Pumps

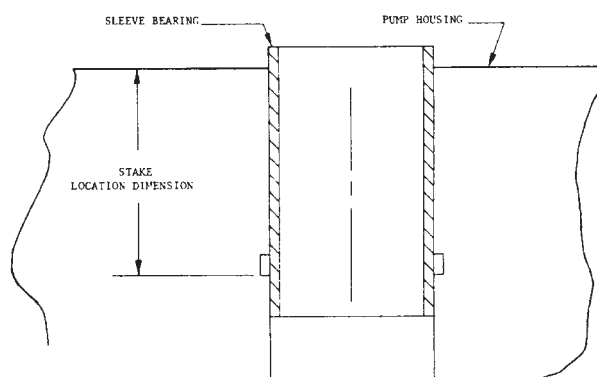


This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Tooling Needed to Service the 20 and 25 Series Tyrone Pumps			
Item	Part No.	Description	Qty.
20 Series			
1	—	Pressure Plate Remover Group consists:	
	8T-0871	Collet Assembly	1
	—	Shaft (not serviced)	1
	9F-2773	Bolt	1
	5P-1075	Washer	1
2	8T-9137	Bearing Remover (formerly 8T-0870, discontinued)	
3	8T-0880	Bearing Installer Group consists:	
	—	Punch Assembly	1
	—	Cap (not serviced)	1
	—	Sleeve, Staking	1
	8T-0878	Staking Tool	2
	1K-6979	Set Screw	2
25 Series			
1	8T-9134	Pressure Plate Remover consists:	
	8T-9135	Collet Assembly	1
	—	Shaft (not serviced)	1
	9F-2773	Bolt	1
	5P-1075	Washer	1
2	8T-9128	Bearing Remover	
3	8T-9133	Bearing Installer Group consists:	
	8T-9129	Punch Assembly	1
	8T-9131	Cap	1
	8T-9132	Staking Sleeve	1
	8T-0878	Staking Tool	2
	1K-6979	Set Screw	2

Chart A		
Pump Series	Stake Location Dimension (in)	Staking Sleeve Part No.
Former	1.285 ± 0.005	FT2145
25 Current	1.630 ± 0.005	8T-9132
Former	1.908 ± 0.005	FT2146

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.



Service Tools for FP/FL/HP-7 and FP/HP-8 Series Tyrone Pumps

SMCS Code: 5061-017, 5073, 0738

Model: D11N, 834B, 988B, 988F, 992, 980, D10, D7H, 578, 589

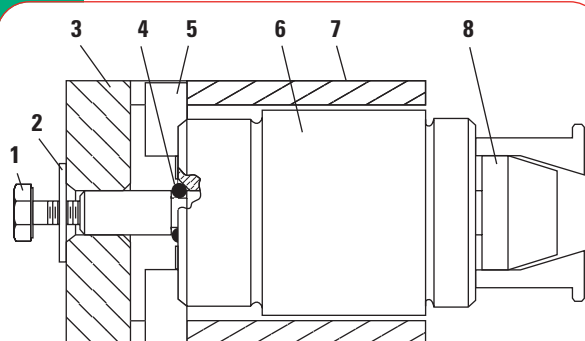
Warranty: Six Months

- Easier to use and less expensive than previous staking tools
- 130-5946 Staking Tool Group replaces the discontinued 8T-3057 and 4C-9647 Groups
- 135-7275 Staking Tool Group replaces the discontinued 8T-9123 and 4C-9648 Groups
- Used to install and then secure (stake) sleeve bearing into pump/motor housing or head assembly (very easy to use and understand)
- Used with 4.5 t (5 ton) arbor or hydraulic press
- These two combination tools work on both iron and aluminum housings, series 7 and 8 pumps and motors (simply rotate guide 180° depending on pump type and series)
- Automatically assembles sleeve bearing to proper depth and stakes each sleeve bearing precisely in place (no measuring is required)
- Made of high-grade steel and plated for many years of trouble free service

Overall size	70.0 mm (2.75 in) diameter
Length	146.0 mm (5.75 in)
Weight	2.5 kg (5.5 lb)

Reference

NEHS0660, Tool Operating Manual, Replacing Sleeve Bearings in Tyrone Gear Pumps and Motors (used on Series 7 and 8, Iron and Aluminum Housings)



Typical Staking Tool

Item	Part No.	Description
130-5946 Staking Tool Group (FP/HP8)		
1	8T-8908	Bolt
2	6V-7646	Washer
3	—	Cap
4	125-8247 ¹	O-ring Seal
5	129-1875	Staking Leg
6	—	Guide
7	—	Sleeve
8	129-1873	Driver

¹Not serviced

Item	Part No.	Description
135-7275 Staking Tool Group (FP/HP7)		
1	8T-8908	Bolt
2	6V-7646	Washer
3	135-7277	Cap
4	125-8247 ¹	O-ring Seal
5	129-1875	Staking Leg
6	135-7268	Guide
7	135-7276	Sleeve
8	135-7269	Driver

¹Not serviced

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

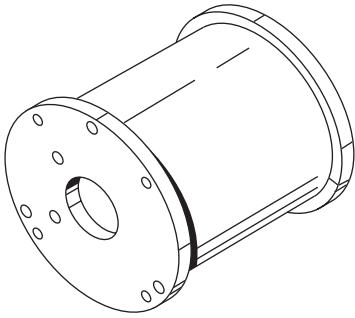
FT1681 Motor Support

SMCS Code: 4150-016, 5459
Model: 943, 953, 963, and 973 Track-type Loaders; 235, 235B, 245, and 245B Excavators
Warranty: None

- Used to assemble track motors and swing motors
- Used with FT1532 Spanner Wrench and FT1549 Fixture which holds drive plate while housing (not drive plate) is rotated
- Enables rotating torque of drive plate to be checked while bearing retaining locknut is tightened (procedure required for correct assembly)
- Used on track motors for 943, 953, 963, and 973 Track-type Loaders; track motors on 235, 235B, 245, and 245B Excavators; swing motors on 235, 235B, and 245 Excavators

References

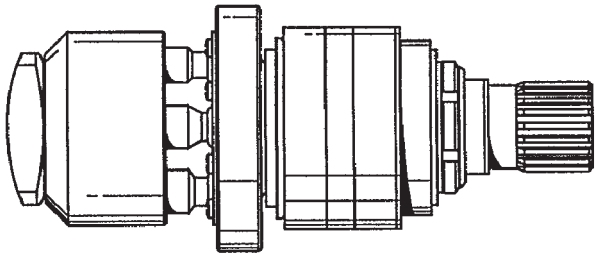
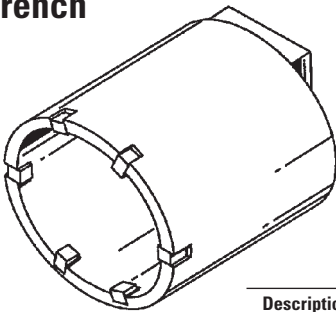
SEVN2163, Video
SENR4939, Assembly Procedure Wall Chart
SENR4940, Assembly Procedure Wall Chart



1U-7643 Piston Nut Spanner Wrench

SMCS Code: 5058-010, 5070-010, 5058-079 and 5070-079
Model: See Below
Warranty: Six Months

- Used to remove and install 9T-2004 Nut
- Used with torque wrench if specific torque is required
- Provides best method of tightening nut — decreases chance of slipping off and/or damaging nut or other components



Nuts used in piston pump and piston motor rotating groups (typical)

Description	Model
Tractors	D6H, D7H, D8N
Excavators	215, 215B, 215C, 215D, 219, 219D, 225, 225B, 225D, 227, 229, 229D, 231D, E120B, 320, 322, 325, 330
Wheel Loaders	988F
Front Shovels	5130, 5230
Wheel Tractor Scrapers	623E, 623F
Outside diameter	82.5 mm (3.25 in)
Overall length	146.0 mm (5.75 in)
Socket depth	127 mm (5.0 in)
Square drive	3/4 in
Number of teeth	6, evenly spaced
Tooth width	6.75 mm (0.266 in)
Width between teeth	68.3 mm (2.69 in)

293-6365 Threaded Adapter

SMCS Code: 5070-017
Model: 5110B Swing Drive Hydraulic Motor
Essential Tool
Warranty: Six Months

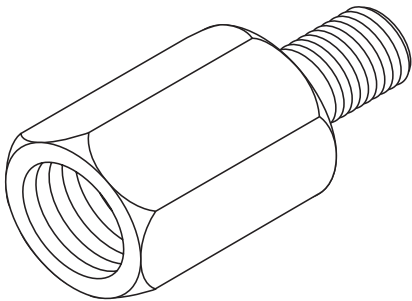
NEW TOOL

- Used to remove rotating group from swing motor
- Used with 8B-7548 Bearing Puller Assembly
- Male thread (9/8-11) and female thread (1-14)

Reference

REN3374, Service Manual, 5110B Machine Systems
Disassembly and Assembly Manual

Maximum capacity	8165 kg (9 tons)
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This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Excavator Pump and Motor Service Tools

SMCS Code: 5050-010

Model: 205, 206, 211, 212, 213, 214 and 224 Excavators

Warranty: Six Months

*This article has changed
since the printing of the 2009
Dealer Service Tools Catalog.*

- Used to service hydraulic pump, swing motor, and drive motors
- Various combinations of these tools required for disassembly and assembly of these hydraulic pumps and motors, manufactured by Linde (see chart)
- FT2232 Leveling Fixture Group used for servicing B2PV50 and B2PV75 Pumps; FT2232 Leveling Fixture Group used to maintain proper altitude between variable pump housing and rotating gear groups during pump reassembly
- 1U-6671 Flange Puller Group used to remove rotating gears from main housings; also considered general usage tool
- BMF75 Motor also used as differential steering motor on Challenger 65

Reference

SEN3358, Service Manual Supplement, Disassembly and Assembly for Hydraulic Pumps and Motors for Excavators, details on use of each service tool



Illus. 1
Typical Excavator Hydraulic Pump and Motor Service Tools

Item	Part No.	Description
1	—	Spanner Wrench (not serviced)
2	—	Alignment Fixture
3	—	Handle (not serviced)
4	—	Punch (not serviced)
5	—	Bearing Puller Group (not serviced)
6	8T-7679 8T-9144	Seal Driver Seal Driver
7	—	Key (not serviced)
8	—	Socket Wrench Assembly
9	4C-4063	Seal Guide
10	—	Template (not serviced)
11	—	Template Assembly (not serviced)



Illus. 2

FT2232 Leveling Fixture Group			
Item	Part No.	Description	Qty.
1		Plate	
2	9L-5595	Bolt (3/8 in-16 x 5 in)	2
3	1D-4717	Nut	2
4	5M-2894	Washer	2



Illus. 3

1U-6671 Flange Puller Group			
Item	Part No.	Description	Qty.
1		Puller Plate	
2	1U-6693	Forcing Screw	
3	0S-1619	Bolt	3
4	6F-7031	Bolt	3
5	1U-6694	Shaft Protector	

Machine Model/Pump or Motor/Pump or Motor Model

Item No.	Part No.	Description	205	213	205	211	213	206		205	
			206	214	206	212	212	212		211	
			211	214	206	212	224	214	224	213B	
			212	224	Swing	Swing	Swing	Drive	Drive	Drive	
			Pump	Pump	Motor	Motor	Motor	Motor	Motor	Motor	213
			B2PV50	B2PV75	BMF35	BMF50	BMF75	BMR105	BMR140	HMV55 and HMV63	BMF50
Illustration 1											
6	8T-7657	Seal Driver							1		
6	8T-7681	Seal Driver					1				
6	8T-9144	Seal Driver								1	
9	4C-4063	Seal Guide								1	
Illustration 2											
	FT2232	Leveling Fixture Group	1	1							
Illustration 3											
	1U-6671	Flange Puller Group	1	1							

Disassembly and Assembly Tools for 205, 211, 213B Excavator Travel Motors

SMCS Code: 5450-010

Model: 205, 211, 213B Hydraulic Excavators

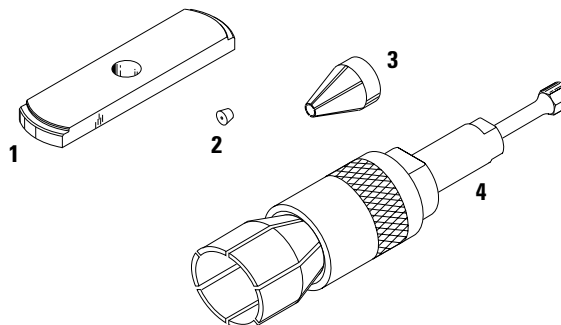
Warranty: Six Months

- Used to service travel motors
- Complete list of tools in 213B disassembly and assembly manual for travel motor; these tools complete tooling needed for disassembly and assembly of Linde manufactured HMV55 and 63 motors

References

SENRA078, 205 and 211 Excavator Service Manual

SENRA3558-01, 213-B Excavator Service Manual



Linde HMV 55 and 63 Motor Tooling

Item	Part No.	Description	Application
1	—	Centering Tool	Allows proper alignment of the rotating group when barrel shim measurements are taken
2	4C-4063	Seal Guide	Helps expand the seals and backup rings when installing them on the control pistons
3	8T-9144	Piston Ring Pusher	Helps installation of the control piston seals
4	—	Bearing Puller Group	Used to remove the bearing cone from the pump rotating group (not serviced)

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Service Tools for 9T-1208 Track Motor

SMCS Code: 5058-015, 5058-016, and 5058-036

Model: 227, 229, 229D, 231D, 235, 235B, 235C, 235D, 245, 245B, 245D Excavators

Warranty: Six Months

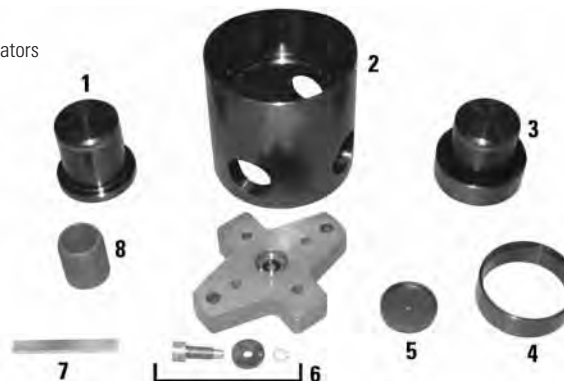
- Used to disassemble and assemble 9T-1208 Track Motor
- Makes repairs easier and faster

References

SENRA3402, Service Manual

SENRA4269, Service Manual

Item	Part No.	Description
1	—	Driver Assembly
2	1U-5474	Fixture
3	—	Driver Group
4	—	Ring
5	—	Shaft Seal Driver
6	—	Plate Group
7	1U-5553	Parallel Group
8	—	Seal Guide
Not shown		
	1U-7565	Allen Key
	1U-8825	Forcing Screw
	FT2218	Piston Ring Pliers



This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Rexroth Hydraulic Pump and Motor Service Tools

SMCS Code: 5050-010

Model: 215B, 225, 227 and 330 Excavators, D8R Track-Type Tractor

Warranty: Six Months

- Required for disassembly and assembly of Rexroth hydraulic pumps and motors
- Improve efficiency and quality of repairs to Rexroth hydraulic pumps and motors

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Some Service Manuals now require updating as a result of the final tool part numbers listed in the chart. Use the enclosed chart to update the Tools Needed Charts on page 28 of the Disassembly and Assembly Manual 215B and 225 Hydraulic Pump and Motors (Piston-Type) Form Number SENR3248. Disassembly and Assembly Manual 215B and 225 Hydraulic Pump and Motors (Piston-Type) Form Number SENR3248 is found in Service Manuals SENR3035 (215B), REG01578 (225) and REG01156 (225). In the same publication the 8T-9147, 8T-9150 and 8T-9152 Expanding Sleeve are incorrect in the 2nd, 3rd and 4th charts and should be replaced by 8T-9144 Expanding Sleeve.

Also reference SENR8331 Service Manual (252-0614).



This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

			215 215B SA	215B 215B SA	215B	215 SA	225	227	225	330B	D8R	Tool Application
			Implement Pump	Swing Motor	Track Motor	Track Motor	Swing and Track Motors	Swing Motor	Implement Pump	Double Piston Pump Group	Steering Motor	
Item	Cat P/N	Rexroth P/N	9T-0992 ¹ AA8V-0107	9T-0891 ¹ AA2F63	9T-0670 ¹ AA2F80	9T-1062 ¹ AA2F107	9T-0999 ¹ AA2F131	9T-0999 ¹ AA2F131	9T-1054 ¹ AA8V-0107	153-9185 A8V0160	9T-8345 ¹ AA2FE125	
1	1U-5427	Seal Installer	1						1			Mount seal on secondary PTO
2	8T-9145	Seal Driver	1	1	1	1	1	1	1			Install lip seal into cover
	8T-9148	Seal Driver				1	1	1				Install lip seal into cover
3	8T-9163	Thread Adapter	1						1			Install lip seal in drive shaft cover
4	8T-9164	Puller Plate	1						1			Pull drive gears
5	1U-5428	Bearing Driver	1						1			Install bearing on secondary PTO pinion
6	8T-9143	Piston Ring Guide		1								Install piston rings
	8T-9146	Piston Ring Guide			1							Install piston rings
	8T-9149	Piston Ring Guide					1	1				Install piston rings
	8T-9151	Piston Ring Guide				1						Install piston rings
	8T-9167	Piston Ring Guide	1						1			Install piston rings
	205-1642	Piston Ring Guide								1		Install piston rings
	252-0614	Piston Ring Guide									1	Install piston rings
7	8T-9139	Thread Adapter		1	1							Pull rotary group
	8T-9140	Thread Adapter		1	1							Pull rotary group
	8T-9161	Thread Adapter	1						1			Pull drive gears and auxiliary drive
	8T-9162	Thread Adapter	1						1			Pull idler gear shaft
8	8T-9144	Piston Ring Pusher		1								Install piston rings
9	8T-9156	Seal Guide	1						1			Protect input shaft lip seal
	8T-9158	Seal Guide			1							Install cover with lip seal
	8T-9159	Seal Guide				1	1	1				Install cover with lip seal
10	8T-9165	Angle Block	1						1			Pull drive gears

¹ Discontinued

Seal Installers For Seal Change Kit

SMCS Code: 5050, 5082

Model: Motor Graders, Wheel Loaders, Integrated Toolcarriers, Off-Highway Trucks, Articulated Trucks

Essential Tool

Warranty: Six Months

- Used to install seals in hand metering units

257-8474 Seal Installer

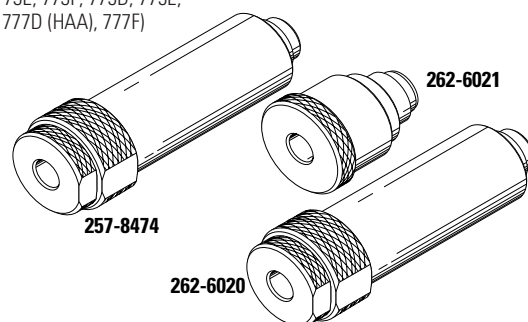
- Used on Motor Graders (12H, 14H, 16H, 120H, 135H, 140H, 143H, 160H, 163H) Wheel Loaders (914G, 924G, 928G, 938G, 966H, 972H) Integrated Toolcarriers (IT14G, IT28G, IT38G)

262-6020 Seal Installer

- Used on Off-Highway Trucks (784B, 784C, 785, 785B, 785C, 789C, 793C) Articulated Trucks (D350E, D400E, 735, 740) Integrated Toolcarriers (IT18, IT18B, IT28B) Wheel Loaders (916, G916)

262-6021 Seal Installer

- Used on Off-Highway Trucks (769D, 770, 771D, 772, 773D, 773E, 773F, 775D, 775E, 775F, 776D, 777D, 777D (HAA), 777F)



147-3497 Spring Compressor

SMCS Code: 5070-017

Model: D3C, D4C, and D5C Track-Type Tractor, Hystat Drive; 933C and 939C Track-Type Loader, Hystat Drive

Essential Tool

Warranty: Six Months

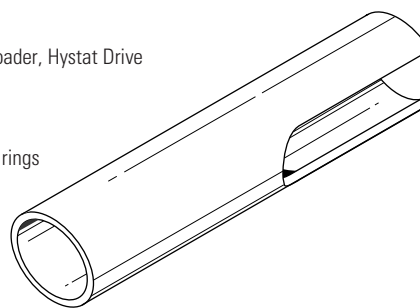
- Used to compress flow control valve spring to remove or install retainer locks and snap rings
- Used with shop arbor press
- Designed to provide easy access to retainers and snap ring
- Makes removing and installing retainers and snap ring easier

References

SEN1255, Disassembly and Assembly D3C, D4C, D5

C Track-Type Tractor Machine Systems

SEN1271, Disassembly and Assembly 933C, 939C Track Type Loader Machine Systems



Outside diameter	48.3 mm (1.9 in)
Inside diameter	40.9 mm (1.61 in)
Overall length	203.2 mm (8.0 in)

287-3672 Split Ring Remover

SMCS Code: 5050-010

Model: RM350 and RM350B Road Reclaimer/Soil Stabilizer

Essential Tool

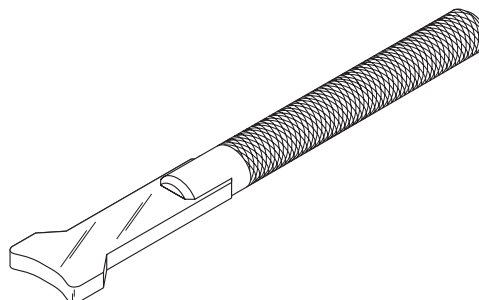
Warranty: Six Months

NEW TOOL

- Used to remove split ring from Rexroth hydraulic motors
- Knurled handle for improved grip
- Overall length: 215 mm (8.46 in)

Reference

KENR3125, Service Manual, RM350B Road Reclaimer/Mixer Power Train Piston Motor (Rear Propel) Disassemble



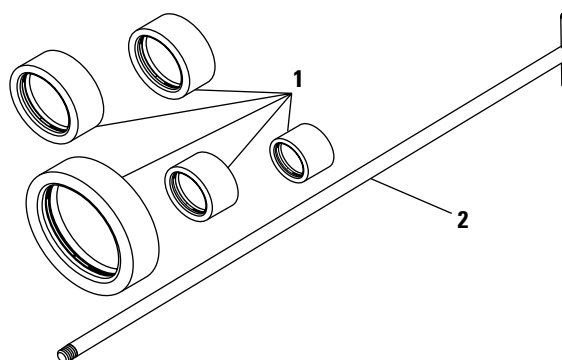
Cap Assemblies (Hydraulic Tank) and Handle

SMCS Code: 5070-010

Model: Most Hydraulic Excavators

Warranty: Six Months

- Used to seal suction port in hydraulic tank
- Seal caps thread onto handle assembly
- Fits over hydraulic tank suction port from inside tank (suction screen must be removed first)
- Eliminates draining hydraulic oil tank to make system repairs (tank cap should be reinstalled to prevent oil contamination)
- Order parts separately (must order at least one handle)
- To verify correct cap is being used, inside diameter measurement of suction screen should match ID of cap assembly



Item	Part No.	Description	Inside Diameter	Use on	Service/Repair Parts
1	227-4685	Seal Cap	160.0 mm (6.30 in)	350, 365B, 365C, 375, 385B, 385C, 5080, and 5090B Excavators	5L-5032 O-ring
	227-4683	Seal Cap	115.5 mm (4.55 in)	318C, 320C, 320D, 322C, 325C, 325D, 330B, 330C, 330D, 345B, and 345C Excavators	5H-5672 O-ring
	234-1615	Seal Cap	90.4 mm (3.56 in)	320A and 322A Excavators	1H-0474 O-ring
	234-1614	Seal Cap	75.7 mm (2.98 in)	311C, 312C, 315ABC, and 318B Excavators	095-1552 O-ring
	234-1613	Seal Cap	61.7 mm (1.25 in)	307ABC, 308BC, 311AB, 312AB, and 313B Excavators	099-4780 O-ring
2	227-4690	Handle (fits all cap sizes)			

Pump Measuring Tools

SMCS Code: 5070-082, 0685

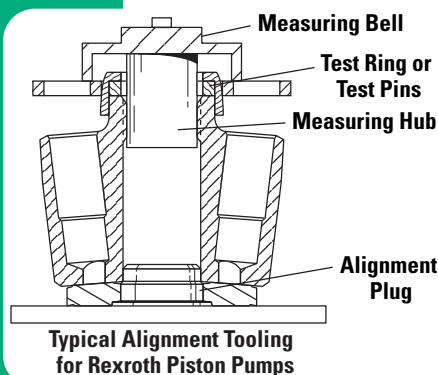
Model: Machines with A20V, A11V and A4V Rexroth Hydraulic Piston Pumps

Warranty: Six Months

- Used to properly set and hold alignment between port plate, barrel, and slipper retaining plate when determining measurement for pump barrel lift-off shim thickness
- Allows easy measurement of commonly used Rexroth pumps within A20V, A11V and A4V model ranges
- Tools are precision ground for accurate measurements and nickel plated for long, corrosion free life

Reference

Service Manual Module, M318 Disassembly and Assembly, M320 Disassembly and Assembly



**Typical Alignment Tooling
for Rexroth Piston Pumps**

Tools required to measure and assemble each Rexroth pump on the described vehicle model

Model	Pump No.	Rexroth Model No.	Tools Required
M312, M315	133-5494 ² , 132-7333 ²	A4VG40	135-8293 Measuring Hub 128-2744 Measuring Bell 135-8295 Test Ring 135-8291 Alignment Plug
D3G, D4G, D5G	178-4415	A4VG40	135-8293 Measuring Hub 128-2744 Measuring Bell 135-8295 Test Ring 316-0053 Alignment Plug
M318, CB434, CB444, CB534, CB634	111-3728 ² , 112-5730 ² , 122-1105 ²	A4VG56	128-2743 Measuring Hub 128-2744 Measuring Bell 128-2745 Test Ring 128-2741 Alignment Plug
CB544, D3C, PR750, PR1000, 914G, 933C	113-9222, 113-9420 ² , 130-1807	A4VG71	135-8294 Measuring Hub 128-2744 Measuring Bell 135-8296 Test Ring 135-8292 Alignment Plug
D4C, D5C, IT14G, 914G, 939C, PS150, PS200, PR750, PR1000	111-0371 ² , 113-9423 ² , 132-5159 ²	A4VG90	128-2747 Measuring Hub 128-2744 Measuring Bell 129-3877 Test Ring 129-3882 Alignment Plug
D8N	—	A4VG125	129-3873 Measuring Hub 128-2744 Measuring Bell 129-3878 Test Ring 129-3883 Alignment Plug
631E, 637E	—	A4VG180	129-3875 Measuring Hub 129-3876 Measuring Bell 129-3879 Test Ring 129-3884 Alignment Plug
651E	156-7034	A4V0250	171-1113 Measuring Hub 129-3876 Measuring Bell 171-1112 Test Pin (requires 3) 171-1114 Alignment Plug
M312	130-7673	A11V095	129-3873 Measuring Hub 128-2744 Measuring Bell 127-1328 ¹ Test Ring 137-1330 Alignment Plug
M315, M318	111-3727, 130-2447	A11V0130	129-3874 Measuring Hub 128-2744 Measuring Bell 128-2746 Test Ring 128-2742 Alignment Plug
M320	128-4325	A11V0190	137-1326 Measuring Hub 129-3876 Measuring Bell 137-1329 Test Pin (requires 3) 137-1331 Alignment Plug
375, 990, 5080	6E-1452 ¹ , 7Y-4007, 105-7282	A11V0200	129-3875 Measuring Hub 129-3876 Measuring Bell 129-3880 Test Ring 129-3903 Alignment Plug
375, 992, 994, 5080, 5110, 5130, 5230	6E-6590 ² , 7Y-4005 ² , 9T-8993, 105-5017 ² , 105-5020 ² , 106-4308 ² , 106-4309 ² , 107-6438 ² , 112-7870 ² , 112-7889 ² , 117-5959 ² , 117-5960 ² , 125-9519 ² , 125-9520 ² , 125-9522 ²	A11V0250	130-9890 Measuring Hub 129-3876 Measuring Bell 129-3881 Test Ring 129-3904 Alignment Plug
365B, 797, 5230	147-5806 ² , 150-6600 ² , 160-0165 ²	A11V0260	171-1113 Measuring Hub 129-3876 Measuring Bell 171-1112 Test Pin (requires 3) 171-1114 Alignment Plug
365B	158-9066 ²	A20VL0260	171-1113 Measuring Hub 129-3876 Measuring Bell 171-1112 Test Pin (requires 3) 171-1114 Alignment Plug
CB224, CB434, CB534	1G-4116, 122-0014	A11VG35	138-2114 Measuring Hub 138-2120 Test Ring 138-2117 Alignment Plug
CB444, CB534, CB544, CB545, CB634	119-3135, 112-5732 ²	A11VG50	135-8293 Measuring Hub 135-8295 Test Ring 138-2118 Alignment Plug

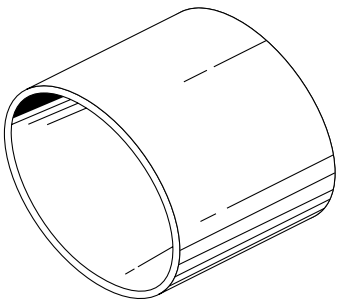
¹ Not serviced² Discontinued

*This article has changed
since the printing of the 2009
Dealer Service Tools Catalog.*

207-8159 Guide Bushing

SMCS Code: 5084-012
Model: 416B, 426B, 428B, 436B, and 438B Backhoes
Essential Tool
Warranty: Six Months

- Used to compress 3E-4878 Bushing during installation into 166-2141 Hub Group
- Used with 5P-3975 Rubber Lubricant (makes bushing installation easier)



163-5006 Spring Clip

168-8395 Drive Impact Socket

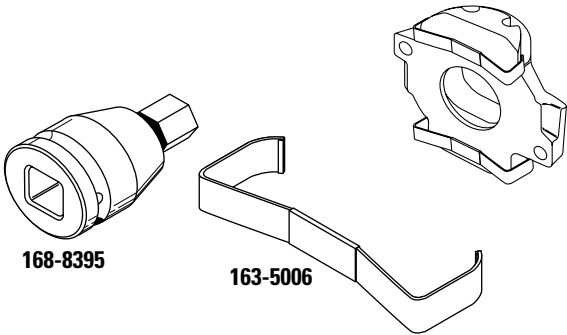
SMCS Code: 5070-016
Model: Machines with 1.1 Series A11V Rexroth Hydraulic Piston Pumps
Essential Tool
Warranty: Six Months

163-5006 Spring Clip

- Used to properly retain roller bearing cages against swash plate during assembly
- Attaches quickly — reduces assembly time
- Packaged individually, 2 required

168-8395 Drive Impact Socket

- Used to tighten housing bolts to 830 N·m (612 ft·lb)
- Used with 9S-7352 Torque Wrench, 6V-9451 Torque Tube, 8F-4678 Adapter 19.05 mm (¾ in), and two 6V-9452 Drive Adapters
- Use torque computer with SEHS7150 to determine torque setting prior to tightening bolts



163-5006 Spring Clip

Overall size	140 x 50.8 x 12.7 mm (5.5 x 2.00 x 0.500 in)
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168-8395 Drive Impact Socket

Hex size	17 mm
Overall length	61.7 mm (2.43 in)
Square drive	¾ in
Replacement bit	169-0782 Bit, Hex

Reference

Machine Systems Disassembly and Assembly Manuals

FT2739 Measuring Plate Group

SMCS Code: 5058-082, 5072-082
Model: A2FO Rexroth Pumps, A2FM and A2FE Rexroth Motors
(Sizes 28 cc through 160 cc)

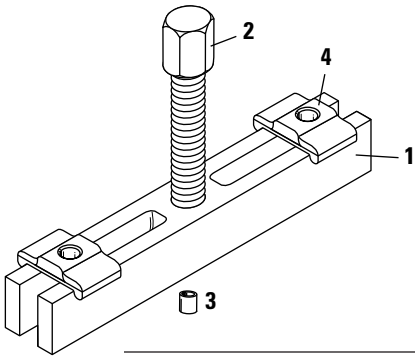
Essential Tool
Warranty: None

- Used to check critical lift-off dimension when assembling pumps and motors
- Used with standard depth micrometer
- Works on any A2 pump or motor up to 160 cc
- Simple design reduces cost (made from standard parts)
- 1P-0456 Plate Drive is part of 1P-0500 Bearing and Seal Driver Group or 1P-0510 Bearing and Seal Driver Group

References

REN4023, Service Manual, M312 and M315 Excavator Disassembly and Assembly Supplement for Swing Drives

REN4024, Service Manual, M318 and M320 Excavator Disassembly and Assembly Supplement for Swing Drives



Item	Part No.	Description	Qty.
1	6V-3009	Cross Bar	1
2	6V-4832	Screw	1
3	1P-0456	Plate Drive	1
4	126-7181	Sliding Plate	2

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

Implements, Frame, Hitch and Suspension

FT2786 Measuring Plate Group

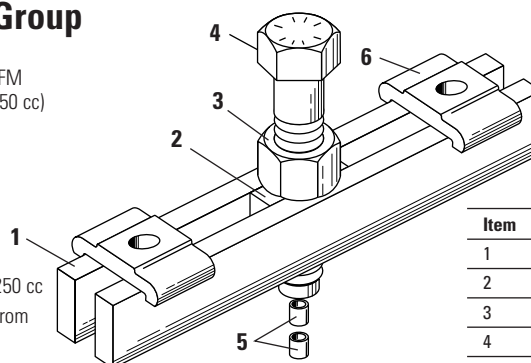
SMCS Code: 5058-082, 5070-082

Model: Machines with A2FO Rexroth Pumps, A2FM and A2FE Rexroth Motors (180 through 250 cc)

Essential Tool

Warranty: None

- Used to check critical lift off dimension when assembling A2 pumps and motors
- Used with a standard depth micrometer
- Works on A2 pumps and motors from 160 to 250 cc
- Simple design reduces cost of tooling (made from standard Caterpillar parts)
- Requires machining to cross block and welding



Item	Part No.	Description
1	FT2786	Measuring Plate Group
2	1U-9895	Cross Block
3	5B-0637	Nut
4	5P-8715	Forcing Bolt
5	1P-0456	Drive Plate
6	3H-0465	Puller Plate

FT3020 Spring Compressor

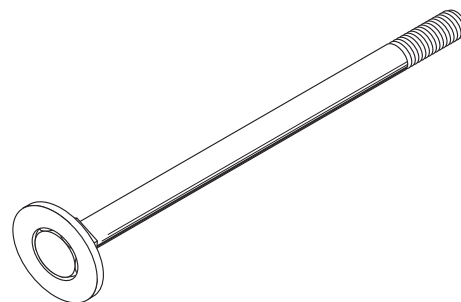
SMCS Code: 5058-082, 5070-082

Model: CB21E, CB224E, CB225E Compactor

Essential Tool

Warranty: None

- Used to disassemble propel piston pump for cleaning purposes
- Tool compresses spring to release pressure on retaining ring
- Washer end of tool is inserted through spring and placed under bottom edge



Puller Jaws

SMCS Code: 5058-015

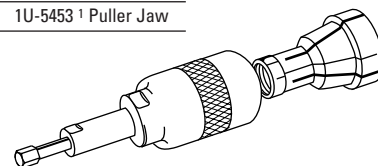
Model: M312, M315, and M318 Wheeled Excavators

Warranty: Six Months

- Used to remove bearing cone from motor rotating group when servicing Linde hydraulic swing and drive motors
- Used with 1U-5449 Bearing Puller Base Unit
- Pulls bearings without damaging sealing surfaces of rotating group

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Puller Jaw Use Chart		
Vehicle	Swing Motor	Travel Motor
M312	—	135-7267 Puller Jaw
M315	—	1U-5453 ¹ Puller Jaw
M318	135-9494 Puller Jaw	1U-5453 ¹ Puller Jaw



**Typical Hydraulic Motor Bearing Puller
Puller Jaws and Bearing Puller Base Unit**

FT2718 Compression Plate

FT2719 Compression Plate

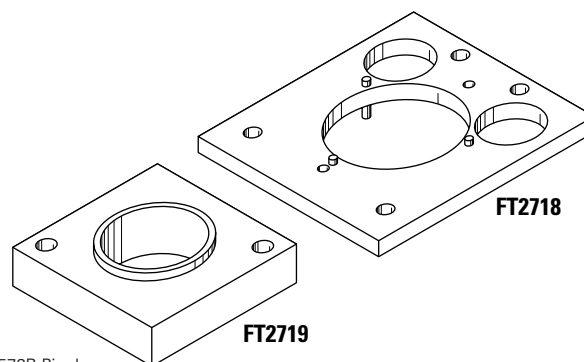
SMCS Code: 5450-010

Model: 572R Track-Type Tractor Pipe Layer

Essential Tool

Warranty: None

- Used to compress cylinder barrel
- Works on Linde HMR-135 and HMF-105 series pumps and motors
- Removes bearing cone from rotating group without damage

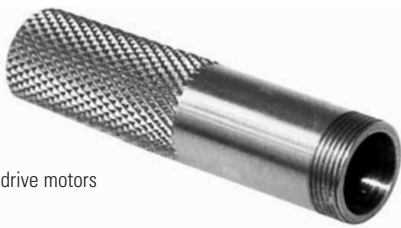


Reference

SEN1861, Service Manual, Machine Systems Disassembly and Assembly, 572R Pipelayer

176-5513 Valve Puller

SMCS Code: 5058-015
Model: M312, M315, M318, and 539 Knuckleboom Loader
Essential Tool
Warranty: Six Months

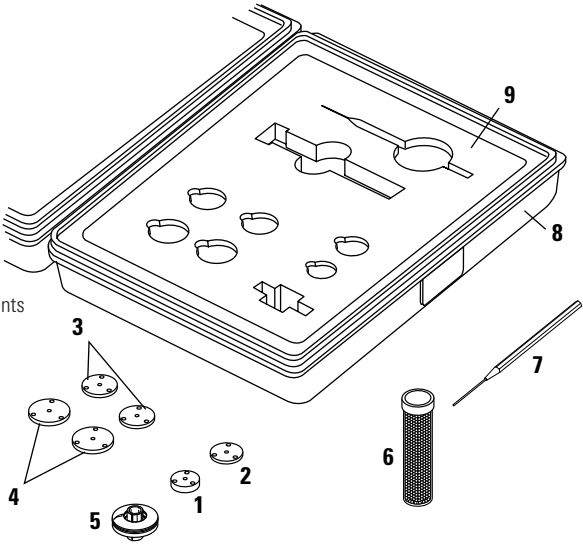


- Used to remove safety pop-off valve cartridge in main control valve of Linde hydraulic swing and drive motors
- Cartridge must be replaced with new part after removal

149-4935 Pump and Motor Measuring Group (A6, A7 and A8)

SMCS Code: 5058-025, 5070-025
Model: Machines with Rexroth A6, A7, and A8 Pumps and Motors
Essential Tool
Warranty: Six Months

- Used to determine correct shim thickness (critical lift off dimension)
- Used with dial caliper or suitable measuring devices
- Simple design reduces cost and simplifies procedure
- Used on 55, 80, 107, 160, and 200 cc (A6 and A7) pumps and motors
- Additional gauge plates included for 107 and 160 cc (A8) pumps
- 184 g (6.5 oz) package of gauge balls is included, allowing approximately 200 measurements before reordering (149-5141)
- Disposable gauge balls provide accurate thickness measurement (each ball used only once)
- Punch included for easy removal of gauge balls after recording measurements
- Overall size: 64.0 x 178.0 x 216.0 mm (2.5 x 7.0 x 8.5 in)
- Overall weight: 0.73 kg (1.6 lb)



References

SEN1255; D3C, D4C, D5C, and Series 3 Hystat Track-Type Tractor Machine System Disassembly and Assembly

NEHS0699; Tool Operating Manual, Using the 149-4935 Measuring Group on A6, A7 and A8 Rexroth Hydraulic Pump and Motor Group

Item	Part No.	Description
1	149-4928	Gauge Plate (A6VM55, A7V055 and A8)
2	149-4930	Gauge Plate (A6VM80 and A7V080)
3	149-4931	Gauge Plate (A6VM107 and A7V0107)
4	149-4932	Gauge Plate (A6VM160 and A7V0160)

Item	Part No.	Description
5	149-4934	Gauge Group (A6VM200)
6	149-5141	Gauge Ball Group 184 g (6.5 oz)
7	226-1901	Drive Pin Punch, 3/32 in
8	—	Plastic Case
9	151-5251	Pump Measuring Group Foam Insert

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Gauge Plates

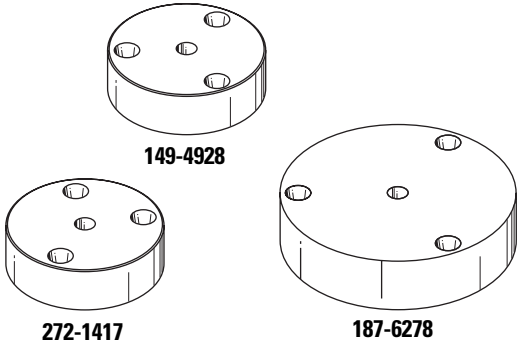
SMCS Code: 5070-025
Model: All Caterpillar Machines with Rexroth A8 Pumps
Essential Tool
Warranty: Six Months

- Used to determine correct shim thickness (critical lift-off dimension)
- Used with 149-4935 Pump and Motor Measuring Group (A6 and A7)
- Simple design reduces cost and simplifies assembly procedure
- Tools are precision ground for accurate measurements
- Heat-treated for durability

References

NEHS0699-01, Tool Operating Manual, Using the 149-4935 Measuring Group on A6, A7, and A8 Rexroth Hydraulic Pump and Motor Groups

SEN1934, Disassembly and Assembly, 345B Excavator, Machine Systems

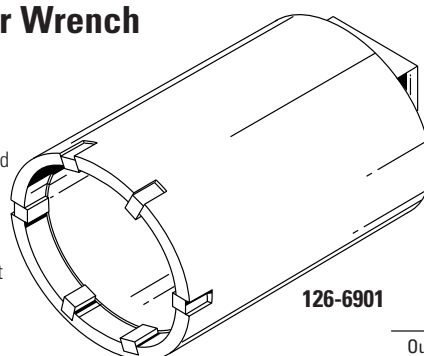


Part No.	Description	Use
149-4928	Gauge Plate (part of 149-4935)	Rexroth model A8V59 pumps
272-1417	Gauge Plate	Rexroth model A8V0160 pumps
187-6278	Gauge Plate	Rexroth model A8V0200 pumps

126-6901 Bearing Nut Spanner Wrench

SMCS Code: 5070-025, 0602, 0766
Model: 330, 330B, and 330B LL Excavators
Warranty: Six Months

- Used to remove and install 5I-4479 Nut used to preload bearings in rotating group
- Used with torque wrench to obtain specified torque
- Provides best method of tightening nut
- Greatly decreases chance of wrench slipping off of nut and damaging nut and/or other pump components



126-6901

Outside diameter	95.3 mm (3.75 in)
Overall length	219.0 mm (8.6 in)
Socket depth	200.0 mm (7.9 in)
Square drive	¾ in
Number of teeth	6
Tooth width	6.4 mm (0.25 in)
Width between teeth	73.3 mm (2.89 in)

Reference

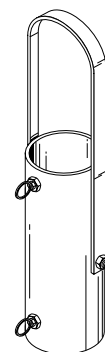
SEPD0269, Service Magazine Article, August 28, 1995

131-5121 Lifting Tool

SMCS Code: 5070-017
Model: 375, 990, 5080, 5110, 5130, 5230 Excavators
Warranty: Six Months

- Used to remove rotating group of Rexroth pump from pump housing
- Used with suitable hoist-type lifting device
- Tool easily attaches to pump shaft with spring-loaded plungers (plungers provide visual indication of whether tool is properly installed, and seated before lifting)
- One tool handles 2 sizes of pump shafts (swivel bail allows tool to be quickly changed to accept both pump shaft sizes)

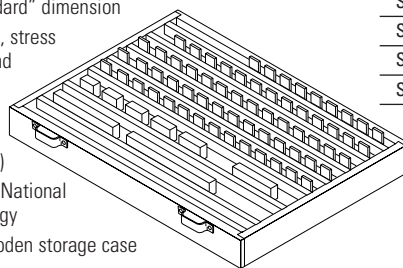
Pump shaft size (40 mm)	375, 890, and 5080
Pump shaft pump size (42 mm)	5080, 5110, 5130, 5230, and some 375
Working load limit	57 kg (125 lb)
Bore size	40.0 and 42.0 mm (1.6 and 1.7 in)
Overall length	165 mm (6.5 in)



141-4803 Gauge Block Group

SMCS Code: 5070-082, 5058-082, 0767
Model: All Models
Warranty: Six Months

- Used to compare hydraulic pump and motor measurements with a known "standard" dimension
- Blocks are hardened to Rockwell 65, stress relieved, lapped to accurate size, and inspected to ensure parallelism and flatness
- Set includes 36 standard sizes (each block is individually serialized)
- Conforms to Grade 3 tolerances for National Institute of Standards and Technology
- Set comes complete with fitted wooden storage case



Material	Rectangular steel
Hardness	Rockwell 65
Gauge set size ranges	(0.00010 - 4.00000 in)
Size range (9 blocks)	(0.1001 - 0.1009 in) in steps of (0.0001 in)
Size range (9 blocks)	(0.101 - 0.109 in) in steps of (0.001 in)
Size range (9 blocks)	(0.110 - 0.190 in) in steps of (0.010 in)
Size range (5 blocks)	(0.100 - 0.500 in) in steps of (0.100 in)
Size range (3 blocks)	(1.0000, 2.0000, and 4.0000)
Size range (1 block)	(0.050 in)

206-3689 Motor Turning Tool

Model: 315C Excavator
Essential Tool
Warranty: Six Months

- Used to turn 185-6953 Piston Motor (travel motor) to check rolling torque
- Also used to bench test brake



Overall length	145 mm (5.7 in)
Diameter	37 mm (1.5 in)
Number of teeth	14
Hex drive	30 mm (1.2 in)

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

250-6142 Threaded Adapter

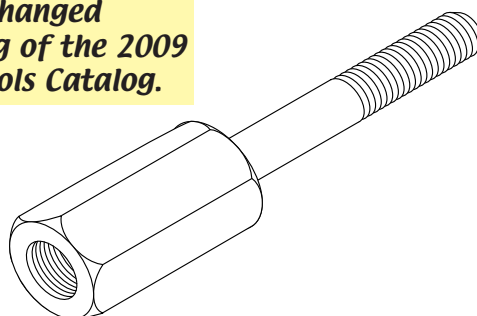
SMCS Code: 5070-017
Model: 330C and 345B Excavator
Essential Tool
Warranty: Six Months

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

- Used to remove 242-6775 Pilot Pump Shaft
- Used with a 1P-0074 or 1U-7603 Slide Hammer
- Converts a 5/8-18 threaded slide hammer to an M12 x 1.5 thread
- 90 mm (3.5 in) long adapter is heat-treated for strength and durability

Reference

REN5438, Service Manual, 330C Excavator Systems Disassembly and Assembly



Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

Implements, Frame, Hitch and Suspension

Hydraulic Pump and Motor Service Tools

SMCS Code: 5050-010
Model: D6H, D7H and D8N Tractors; Challenger 65; 235 and 245 Excavators; 953C Track Loader
Warranty: Six Months

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

- Required for disassembly and assembly of 5 hydraulic pumps and motors manufactured by Linde
- Used to repair differential steering and implement pump on D6H, D7H and D8N Tractors; differential steering motor and pump on Challenger 65; and implement pump and swing pump and motor on 235 and 245 Excavators
- Easier and faster seal installation, bearing removal, piston alignment, and retainer nut removal and installation

The discontinued 9T-5426 Differential Steering Motor on the Challenger 65 is also used as a swing motor on the 213, 214 and 224 Wheel-Type Excavators.

		Machine Model/Pump or Motor Part Number					
Part Number	Description	D7H, D8N 9T-5987 ¹ Pumps	Challenger 65 9T-5426 ¹ Motor	Challenger 65 9T-5743 ¹ Pump	D6H, 235 and 245 9T-6261 ¹ , 9T-2507 Pump	235 and 245 9T-2505 ¹ Pump	953C Track Loader 9T-5619 ¹ Pump
1U-5444	Seal Guide	1					
1U-5449	Bearing Puller	1					
1U-5452	Puller Jaws	1					
1U-5453	Puller Jaws				1		
160-6651	Puller Jaws						1
1U-5455	Template			2			
1U-5539	Compressor Assembly			1			

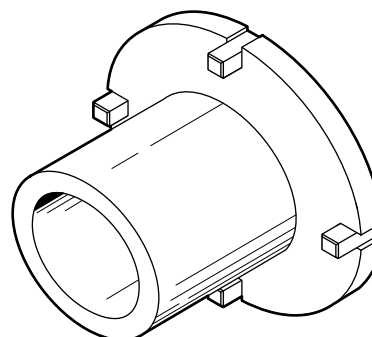
¹ Discontinued

171-1110 Motor Nut Spanner Wrench

SMCS Code: 4351-015, 4351-017
Model: CB544 and CB545 Vibratory Compactors
Essential Tool
Warranty: Six Months

- Used to remove and install 142-1271 Spanner Nut
- Used with 3/4 inch socket or wrench
- Required to disassemble and assemble Poclain Model MC08 drum propel motors
- Pilots from inside diameter of motor shaft (provides positive engagement of nut)
- Heat-treated for added durability

Inside diameter of teeth	85.73 mm (3.375 in)
Pilot diameter	59.0 mm (2.32 in)
Tooth width	5.5 mm (0.22 in)
Overall height	70.0 mm (2.76 in)
Number of teeth	4, evenly spaced



Reference

KENR3039, Machine Systems Disassembly and Assembly, CB544/CB545 Vibratory Compactor

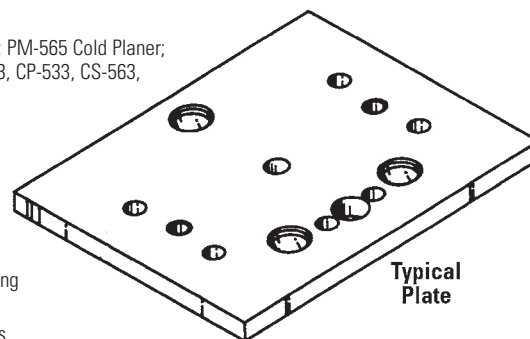
Plates for Measuring Swashplate Position

SMCS Code: 3203-082, 5070-082

Model: 35, 45, and 55 Challengers; RR-250 Road Reclaimer; SS-250 Soil Stabilizer; PM-565 Cold Planer; RM-350 Reclaimer Mixer and SM-350 Stabilizer Mixer; CP/CS323C, CS-533, CP-533, CS-563, CP-563, CS-573, CS-583 Vibratory Compactors

Warranty: Six Months

- Used to measure swashplate position for “zero” displacement in 42, 55, 75, and 100 cc pumps
- Used with 6V-2012 Depth Gauge Group
- Plate preloads pump swashplate neutral mechanism to allow easier and more accurate measurements to be taken (allows “neutral” adjustment to be made during assembly rather than during testing on test stand)
- Installs directly onto pump and measurements are taken through two slotted holes
- Plate remains on pump while swashplate is adjusted (makes rechecking adjustment very fast and simple)
- All plates are made from steel and precisely machined
- Plates are heat-treated for durability and years of repeated use



Part No.	Description	Pump Overall Size	Series	Pump Output
4C-8498	Plate	165 x 203 x 19.0 mm (6.5 x 8.0 x 0.75 in)	93	42 cc — Drum Propel
4C-9419	Plate	178 x 216 x 19.0 mm (7.0 x 8.5 x 0.75 in)	94	55 cc — Axle Propel
127-5653	Neutral Plate	229 x 216 x 19.0 mm (9.0 x 8.5 x 0.75 in)	95	75 cc
127-5654	Neutral Plate	241 x 203 x 19.0 mm (9.5 x 8.0 x 0.75 in)	96	100 cc

References

KENR1899, Service Manual Module, Disassembly and Assembly (CS-533, CP-533)

KENR1627, Service Manual Module, Disassembly and Assembly (CS-563, CP-563)

KENR1884, Service Manual Module, Disassembly and Assembly (CS-573, CP-583)

Service Magazine, August 15, 1994, “Tooling Plate Simplifies Swashplate Neutral Adjustment on Drum Propel Pump”

Bearing Pullers and Sizing Arbors

SMCS Code: 5058-021, 5058-028, 5070-021, 5070-028

Model: Any Machines with Sundstrand Pumps (Mostly Paving Products)

Warranty: Six Months

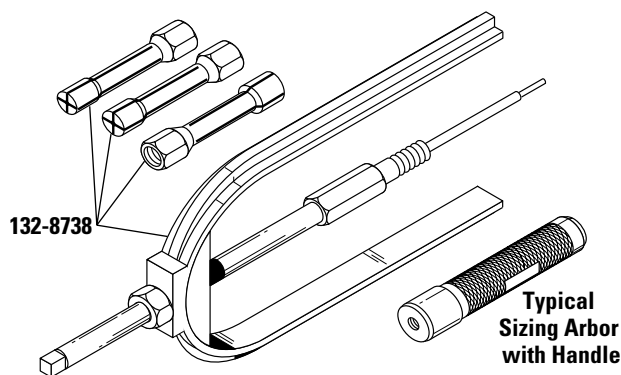
132-8738 Blind Hole Bearing Puller

- Used to easily grab and remove recessed (blind hole) bearings from pump head
- Used with bridge and bar-type yokes or with a slide hammer
- Prevents damage to surface of pump head caused by prying tools
- Collets expand on inside diameter to allow bearing removal
- Set includes yolk, pressure screw, 3 sizes of expandable collets and additional hardware to make a complete puller (group has no serviceable parts)
- Collet sizes: 25.4 to 31.8 mm (1.00 to 1.25 in)
31.8 to 38.1 mm (1.25 to 1.50 in)
38.1 to 44.5 mm (1.50 to 1.75 in)
- Yoke leg spread: 127 mm (5.0 in)
- All parts can be ordered separately

Part No.	Description	Diameter
132-8741	Sizing Arbor (30 cc)	25.300 mm (0.9961 in)
133-3056	Sizing Arbor (55 cc)	30.018 mm (1.1818 in)
133-3057	Sizing Arbor (75 cc)	35.014 mm (1.3785 in)
133-3058	Sizing Arbor (100 cc)	38.100 mm (1.5000 in)
133-3059	Sizing Arbor (130 cc)	44.984 mm (1.7710 in)
	Threaded Hole	$\frac{3}{8}$ -16

132-8739 Sizing Arbor Group

- Used to properly size newly installed bearings in Series 90 pumps
- Commonly, mechanics in the past have used a pump shaft to size the bearing's inside diameter; this is not an acceptable method (using a pump shaft as a sizing tool does not give the proper shaft-to-bearing clearance that is obtained by using the sizing arbors, and will result in significant reductions to pump life)
- Arbors are ground to a 0.0025 mm (0.00010 in) tolerance to properly size the replacement bearings
- Tools are packaged in a convenient case with a 136-7894 Insert to protect the arbor handle and precision ground arbors. Individual parts include:



FT1764 Fixture

SMCS Code: 5050-010

Model: 834B Tractor

Warranty: None

- Reduces difficulty encountered when removing and installing hydraulic control valve



This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Shrink Tubing for Spline Shafts

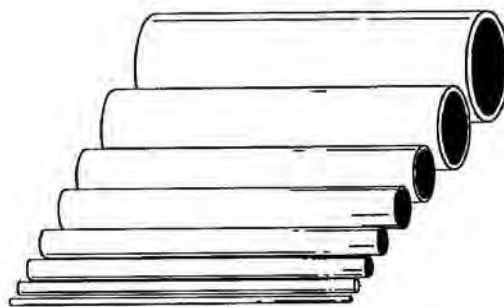
SMCS Code: 3000-016, 5000-016

Model: All Models

Warranty: Six Months

- Used to protect seal from damage caused by spline during assembly
- An inexpensive and versatile system for making seal protectors
- Various sizes to fit outside diameters from 6.4 to 101 mm (0.25 to 4.0 in)
- Tubing can be reused on other spline shafts with the same profile
- Shrink tubing can decrease in size by 50% of its original diameter
- Standard 9U-6070 Heat Gun (110 V) or 9U-6072 Heat Gun (220 V) can be used to shrink tubing

Typical example
— shrink tubing
installed on
hydraulic motor
spline shaft



Typical Shrink Tubing

Part No.	Inside Diameter x Length	Wall Thickness ¹
9U-5716	12.7 x 1220 mm (0.50 x 48 in)	0.33 mm (0.013 in) - 0.63 mm (0.025 in)
9U-5717	19 x 304 mm (0.75 x 12 in)	0.38 mm (0.015 in) - 0.76 mm (0.030 in)
9U-5718	25.4 x 304 mm (1 x 12 in)	0.46 mm (0.018 in) - 0.89 mm (0.035 in)
9U-5719	31.7 x 304 mm (1.50 x 12 in)	0.51 mm (0.020 in) - 1.02 mm (0.040 in)
9U-5720	50.8 x 304 mm (2 x 12 in)	0.58 mm (0.023 in) - 1.14 mm (0.045 in)
9U-5741	101.8 x 304 mm (4 x 12 in)	0.71 mm (0.028 in) - 1.40 mm (0.055 in)

¹ On wall thickness, the first set of numbers are before shrinking and the second set, after shrinking.

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

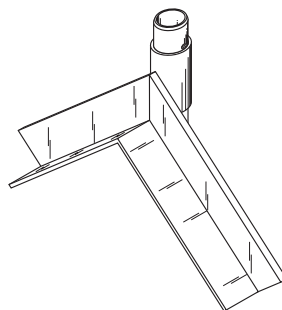
FT2238 Centering Fixture

SMCS Code: 5050-036

Model: Most Caterpillar Models

Warranty: None

- Used in testing cylinder rod surface hardness (6V-6035 Hardness Tester mounted in FT2238 Centering Fixture)
- Centers 6V-6035 and holds it perpendicular to rod surface
- Ensures accurate hardness readings
- Can test hardness of cylinder rods ranging from 19.1 to 228.6 mm (0.75 to 9.00 in) in diameter
- 6V-6035 has hardened steel ball which strikes, but does not dent, tested surface; height of bounce read as Shore scleroscope reading



Step Buffer Seal Installer

SMCS Code: 5050-012

Model: See Below

Warranty: Six Months

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

- Make it possible to quickly and safely install seals without damage

Reference

SEHS8905, Special Instruction, Installing Step Buffer, U-Cup and Double Lip Wiper Seals in head in hydraulic cylinders

Part No.	Size	Use	Model
4C-4069	38.1 mm (1.5 in)	Install 8C-9122 ¹ Step Buffer Seal Assembly in hydraulic cylinders	910 and 910E Wheel Loaders, 508 Skidder, D3B Track-Type Tractor
4C-4070	44.5 mm (1.75 in)	Install 8C-9123 ¹ Step Buffer Seal Assembly in hydraulic cylinders	416, 426, 428, 436 and 438 Backhoe Loaders

¹ Discontinued



Typical Installer

199-4384 Disc Installer

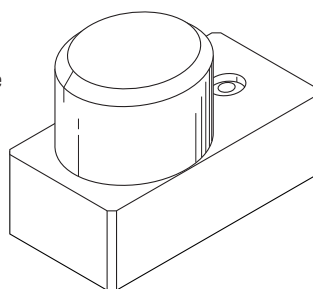
SMCS Code: 5059-012

Model: 416D, 420D, 424D, 428D, 430D, 432D, 438D, and 442D Backhoe

Essential Tool

Warranty: Six Months

- Used to install disc to correct index position
- Reduces valve body or disc damage during installation
- Black-oxide coated to eliminate corrosion
- Overall size: 25 x 50 x 50 mm (1.0 x 2.0 x 2.0 in)



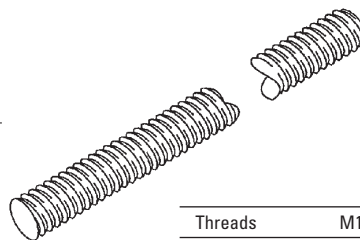
9U-7692 Threaded Rod (Metric)

5058-015, 5058-016, 5058-017

Model: All Challenger Ag Tractors

Warranty: Six Months

- Used to disassemble and assemble steering motors using a metric threaded rod — makes repairs easier and faster
- Rod can be cut to length for this specific application or used in other applications
- Conforms to metric property class 8.8



Threads	M16 x 2
Overall length	1000 mm (39.0 in) long
Working load	60.25 kN (13,550 lb)

Cylinder Head Seal Guides

SMCS Code:

4303-016 (4C-8122)

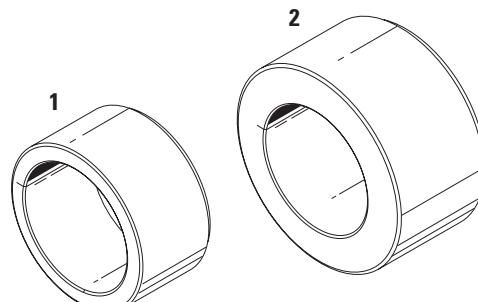
5104-016 (4C-8123)

Model: 994 Wheel Loader

Warranty: Six Months

- Required to install cylinder head seals over square shoulder of cylinder rods
- Installation without them is difficult and will likely damage seals

Part No.	Cylinder Rod Diameter	Cylinder Rod Thread Size
4C-8122	108 mm (4.25 in) guide OD/large end	3.25 in — guide ID
4C-8123	139.7 mm (5.50 in) guide OD/large end	3.25 in — guide ID



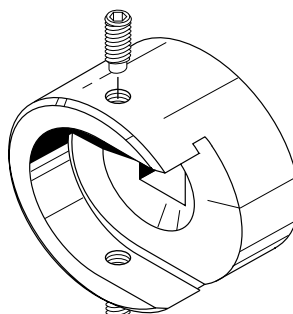
127-5090 Coupling Socket

SMCS Code: 5051-015, 5051-016

Model: 35, 45 and 55 Challenger

Warranty: Six Months

- Used to quickly, and easily remove and install implement hydraulic coupling sleeve
- Used with ½ inch square drive ratchet or torque wrench (torque wrench is used at installation to obtain correct torque on coupling)
- Designed with 2 set screws to provide positive engagement with coupling (also helps prevent part damage during removal and installation)
- Coupling is hardened for durability and long life



Outside diameter	50.8 mm (2.0 in)
Length	33.27 mm (1.31 in)
Square drive	½ in
Set screw	10-24 x ¾ in dog point

Reference

SENR8312, Service Manual

4C-8092 Universal Wrench, Extra Large

SMCS Code: 0602-017

Model: 245, E450, E650, MS380, MS400, MS450 and MS580

Warranty: Six Months

- Used with Tuxco Cylinder Repair Stand to disassemble and assemble hydraulic cylinders
- Extra large universal wrench used on larger cylinder piston retaining nuts on Caterpillar and competitive products that are too large for standard wrench on Tuxco Repair Stand
- Adjustable to sizes that would otherwise require other adapters and many large, expensive sockets with greatly reduced torque
- Can service large nuts at up to 25,000 ft-lb of torque
- Extra large high torque wrench
- Adjustable from 102 through 165 mm (4 through 6½ in)
- Capable of up to 25,000 ft-lb of torque
- Used with 1U-9900, 1U-9901, 1U-9902, 4C-4405, 4C-4406, 4C-4407, 4C-4408, 4C-4868

Reference

NEHC2004-01 Capitol Equipment Guide

17 Fabricated Tools for Articulated Trucks

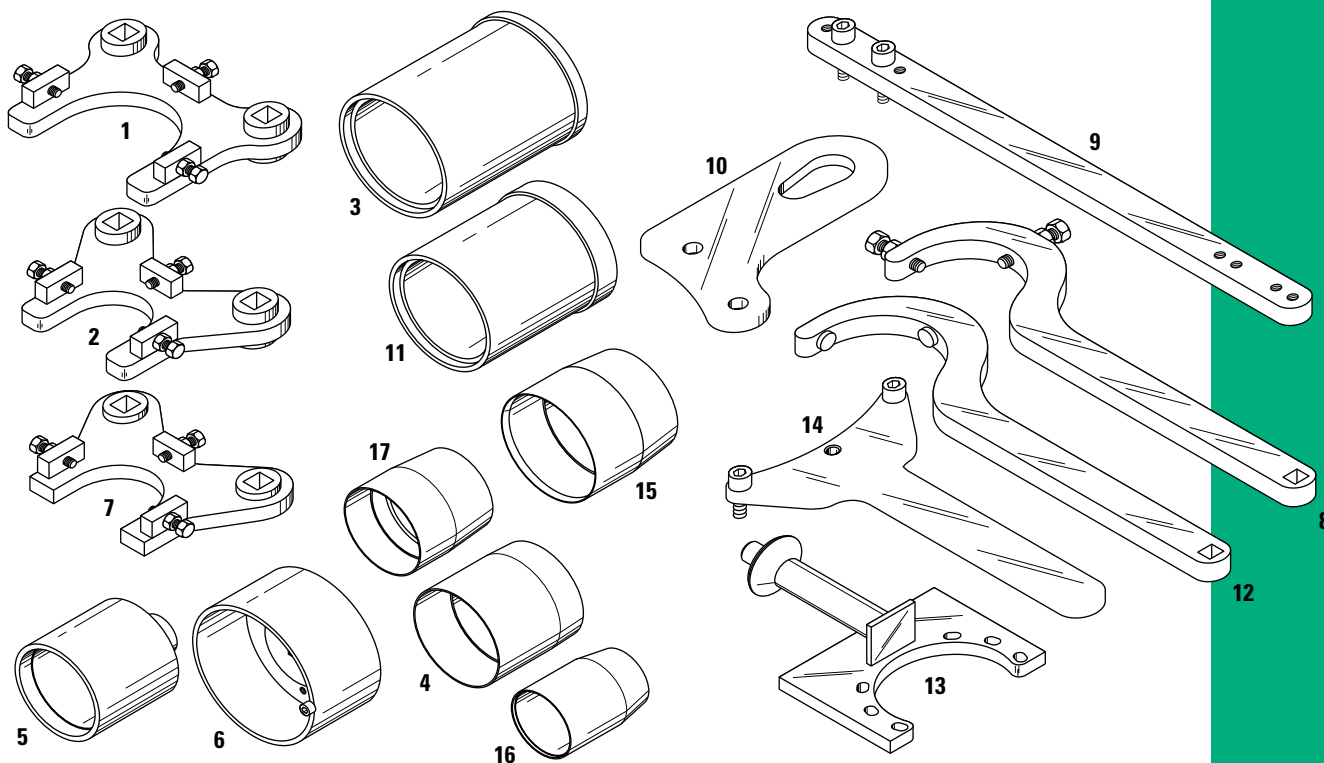
SMCS Code: 7201-017, 7113-025, 3176-010, 3258-010

Model: D25C, D250B, D30C, D300B, D300D, D35C, D35HP, D350C, D350D, D40D, D400, D400D, D44, D44B, D550, and D550B Articulated Trucks

Warranty: None

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Seventeen (17) fabricated tool (FT) drawings are available to make tools required for various procedures on several models of articulated trucks. The tools are needed for disassembly and assembly of suspension and hoist cylinders, adjustment of the thrust hitch flange, removal and installation of axle differentials, and removal and installation of transfer gear drop box. The following list identifies the "FT" tool, component on which it is used, function and articulated truck model on which it is used.



Item	Part No.	Description	Use
1	FT2401	Spanner Wrench	Disassemble and assemble 7U-4182 Outer Head in hoist cylinder (used on D40D)
2	FT2402	Spanner Wrench	Disassemble and assemble discontinued 7U-4219 Inner Head of hoist cylinder (used on D40D)
3	FT2403	Piston Driver	Assemble 6U-4162 and 7U-7083 Pistons in the suspension cylinder (used on D25C, D30C, D35C, D35HP, D350C, D350D, D400, and D400D)
4	FT2404	Seal Guide	Install cylinder head over rod in 6U-4161 Suspension Cylinder Group (used on D25C, D30C, D35C, D35HP, D350C, D350D, D400, and D400D)
5	FT2405	Spanner Wrench	Disassemble and assemble 7U-4218 Inner Piston of hoist cylinder (used on D40D)
6	FT2406	Spanner Wrench	Disassemble and assemble 7U-4166 Outer Piston of hoist cylinder (used on D40D)
7	FT2407	Spanner Wrench	Disassemble and assemble discontinued 6U-3124 Cylinder Head of hoist cylinder (used on D250B, D300B, D300D, D44, D44B, D550, and D550B)
8	FT2408	Spanner Wrench	Disassemble and assemble 6U-3243 Cylinder Head of hoist cylinder (used on D250B, D300B, D300D, D44, D44B, D550, and D550B)
9	FT2409	Spanner Wrench	Disassemble and assemble 7U-4218 and 7U-4166 Pistons in hoist cylinders (used on D40D)
10	FT2410	Lifting Bracket	Remove and install 4C-1800 Transmission Arrangement (used on D400D)
11	FT2411	Piston Driver	Assemble 6U-3247 Piston in suspension cylinder (D250B, D300B, and D300D)
12	FT2412	Spanner Wrench	Disassemble and assemble heads (end caps), in 6U-4161 Suspension Cylinder Group
13	FT2413	Lifting Bracket	Remove and install 4C-1607 (not serviced) and discontinued 9C-2283 Axle Differentials (used in D35C, D35HP, D40D, D44B, and D550B)
14	FT2414	Spanner Wrench	Adjust thrust hitch flanges (used on all models)
15	FT2415	Seal Guide	Install 7U-4182 Outer Head over outer rod (used on D40D)
16	FT2416	Seal Guide	Install 7U-9533 Inner Head over inner rod (used on D40D)
17	FT2417	Seal Guide	Install 6U-3243 Cylinder Head over rod (used on D250B, D300B, D300D, D44, D44B, D550, and D550B)

Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

Implements, Frame, Hitch and Suspension

137-4369 Swivel Bracket Assembly

SMCS Code: 5051-010, 5051-017

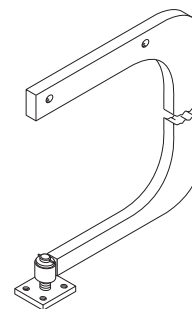
Model: 992G Wheel Loader

Warranty: Six Months

European Union compliant, CE marked

Lifting hole diameter	30.0 mm (1.12 in)
Overall length	1760.0 mm (69.3 in)
Width	757.0 mm (29.8 in)
Weight	110 kg (242 lb)
Lifting capacity	590 kg (1300 lb)

- Used to remove or install hydraulic control valve located on front frame (attaches directly to top of valve body)
- Swivel mount design allows valve body to be rotated or repositioned during valve body removal or installation
- One lifting point is provided at "center of gravity" of valve body, keeping it level during removal or installation
- Second lifting point is provided at "center of gravity" of tool, holding bracket level while attaching it to valve body



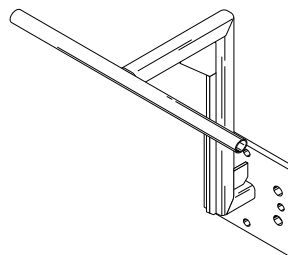
247-4296 Pump Removal Handle Assembly

SMCS Code: 5070-010

Model: All Skid Steer Loaders and Multi-Terrain Loaders

Warranty: Six Months

- Used to help remove and install main hydraulic pump
- Used with 138-7575 Link Brackets and overhead lifting device
- Allows 2 mechanics to manually position and install pump
- Makes pump alignment during installation faster and easier
- 2 bolt hole patterns allow 1 tool to fit all pumps



FT2998 Lock Collar

FT2999 Weight

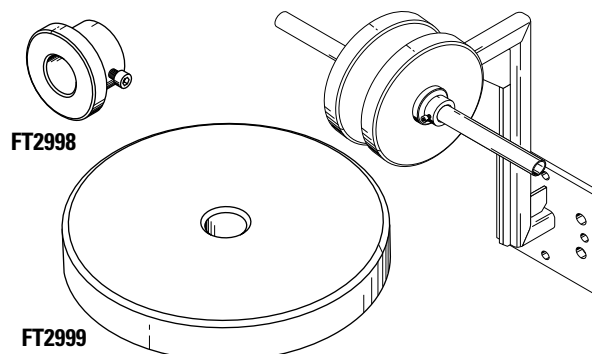
SMCS Code: 5070

Model: 287 (CNY1-Up) and 287B (ZSA1-Up) Multi-Terrain Loaders

Essential Tool

Warranty: None

- Used as a counterweight to facilitate removal and installation of heavier hydraulic pumps
- Requires 2 locking collars and 2 or more weights to be used with 247-4296 Pump Removal Handle Assembly
- Weights are used in any combination from 1 to several depending on weight of pump being removed/installed
- Lock weights on each side of center square tube using lock collars



This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Wrenches

SMCS Code: 5057

Model: 246C (JAY), 256C (DWS), 262C (MST), 272C (RED) Skid Steer Loaders; 277C (JWF), 287C (MAS), 297C (GCP) Multi-Terrain Loaders

Warranty: None

NEW TOOL

- Used to remove and install hydraulic lines

FT3067

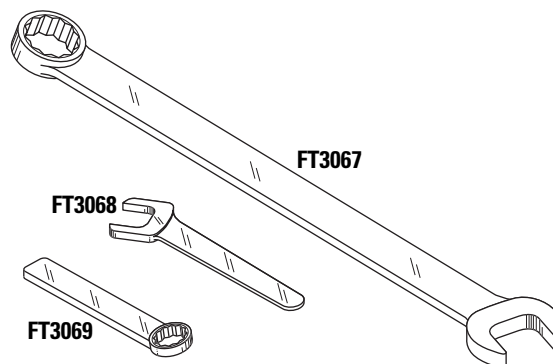
- Used to remove and install drive motor lines
- Decreased head width (open end) provides required clearance between fitting and surrounding components
- Made from 8H-8520 Wrench

FT3068

- Used to remove and install load sensing signal line
- Decreased head width provides required clearance between fitting and surrounding components
- Made from Armstrong 28-032 Wrench

FT3069

- Used to remove and install pilot pump mounting bolts
- Decreased head thickness and shortened overall length provides required clearance between nut and surrounding components
- Made from 6V-9098 Wrench



304-8952 Pump Support Group

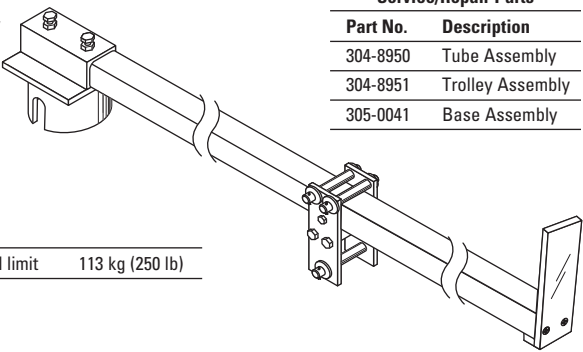
SMCS Code: 5070-010
Model: 246C (JAY), 256C (DWS), 262C (MST), 272C (RED) Skid Steer Loaders,
277C (JWF), 287C (MAS), 297C (GCP) Multi-Terrain Loaders

Essential Tool
Warranty: Six Months

NEW TOOL

- Used to remove hydrostatic pump from C-Series Skid Steer Loaders and Multi-Terrain Loaders
- Used with 8S-7640 Stand Group and 1U-9199 Aluminum Alloy Lever Puller

Working load limit	113 kg (250 lb)
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Service/Repair Parts	
Part No.	Description
304-8950	Tube Assembly
304-8951	Trolley Assembly
305-0041	Base Assembly

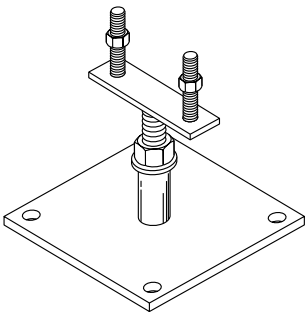
157-0738 Bracket Assembly

SMCS Code: 5066-010, 5066-017
Model: 966G Wheel Loader

Essential Tool
Warranty: Six Months
European Union compliant, CE marked

- Used to remove or install diverter
- Used with 1U-9752 Mechanical Transmission Jack
- Valve is located under hydraulic control valve on front frame

Lifting capacity	28 kg (60 lb)
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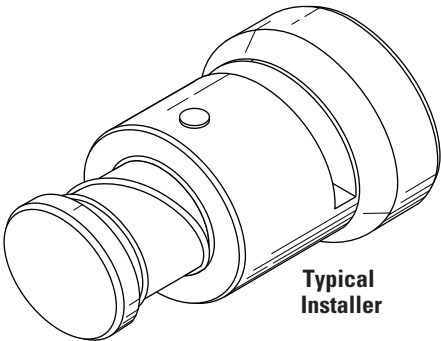


O-ring Installers

SMCS Code: 0618-012
Model: All Models
Warranty: Six Months

- Reduces leaks due to improper O-ring installation in face seal fittings
- Used to install O-ring seals in dove tail O-ring grooves of tube fittings
- Each tool is designed for a specific size O-ring (makes installation easier)
- Prevents damage to O-ring during installation
- Installer snaps O-ring in place creating positive retention
- O-rings installed by hand will not seat properly and usually will roll-out of fitting at installation

179-6884 (-4)	2-011 O-ring
179-6885 (-6)	2-012 O-ring
179-6886 (-8)	2-014 O-ring
179-6887 (-10)	2-016 O-ring
179-6888 (-12)	2-018 O-ring
179-6889 (-16)	2-021 O-ring
179-6890 (-20)	2-025 O-ring
179-6891 (-24)	2-029 O-ring



Typical
Installer

Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and Assembly

Motor Grader Controls,
Cable Control and Winch

Loader Lift Arm and
Excavator Implement

Implements, Frame,
Hitch and Suspension

279-4142 Wrench Assembly

SMCS Code: 6307-010

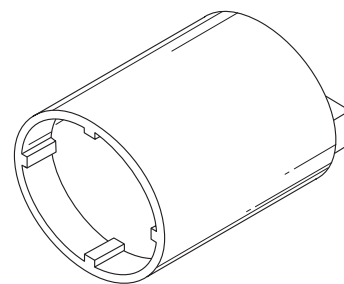
Model: G310B, G315B Grapple

Essential Tool

Warranty: Six Months

- Used to properly remove and install bearing retainer nut without damage
- Used with $\frac{3}{4}$ inch square drive torque wrench
- Provides accurate torquing method

Drive size	$\frac{3}{4}$ in
Spanner ID	105.75 mm (4.163 in)
Number of teeth	4
Tooth width	7.38 mm (0.291 in)
Distance between teeth	99.0 mm (3.9 in)



180-0472 Lift Fixture Assembly (988G Main Valve)

SMCS Code: 5051-010, 0632

Model: 988G Wheel Loader

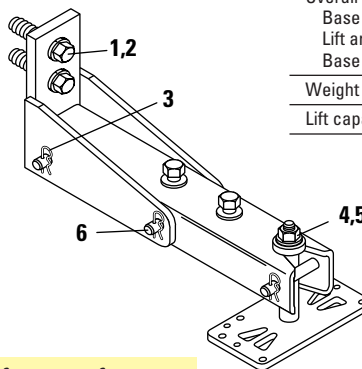
Essential Tool

Warranty: Six Months

Warranty: Six Months

European Union compliant, CE marked

- Used to remove and repair the main hydraulic valve
- Used with 142-1664 Lift Bracket Group
- 3-piece unit bolts directly to lift bracket group
- Allows minimal machine disassembly to remove or install main hydraulic valve
- Lower, rotate, and quickly remove valve with reversible support bracket



Overall dimensions	
Base unit	350 x 110 mm (13.5 x 4.3 in)
Lift arm	594 x 101 mm (23.5 x 4 in)
Base plate	150 x 261 mm (6 x 10.3 in)
Weight	38.6 kg (85 lb)
Lift capacity	317.5 kg (700 lb)

Item	Part No.	Description
1	6B-9194	Bolt
2	5P-8250	Hard Washer
3	5P-0370	Lock Pin
4	2J-3505	Full Nut
5	8C-6913	Hard Washer
6	—	Pin

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

277-5832 Hex Wrench, 30 mm

SMCS Code: 5070

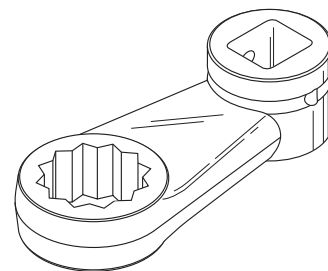
Model: 966H Wheel Loader

Essential Tool

Warranty: Six Months

- Used to tighten hydraulic pump bolts
- Fits into limited clearance around bolt heads (sockets or other tools will not fit)
- Used with a $\frac{3}{4}$ inch square drive 9U-5007 Torque Wrench or equivalent
- Essential for applying proper bolt torque

Hex	30 mm, 12 point
Square drive	$\frac{3}{4}$ in
Center-to-center distance of square drive to socket	76.2 mm (3.0 in)



Reference

REN8881-00, Hydraulic Pump Removal

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

314-9716 Compressor

SMCS Code: 5070-015

Model: CB-113 and CB-114 Compactor

Essential Tool

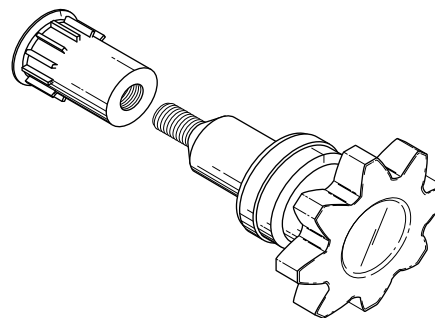
Warranty: Six Months

NEW TOOL

- Used for piston pump (drum propel) disassembly and assembly
- Used to compress barrel assembly
- Large knob easily adjusts tension on compressor assembly

Reference

KENR6008, Disassembly and Assembly, CB14 Vibratory Compactor Machine Systems



WARNING

Personal injury can result from being struck by parts propelled by a released spring force. Make sure to wear all necessary protective equipment. Follow the recommended procedure and use all recommended tooling to release the spring force.

Motor Grader Controls, Cable Control and Winch

Tools for 55, 56, 57, 58 and 59 Towing Winches

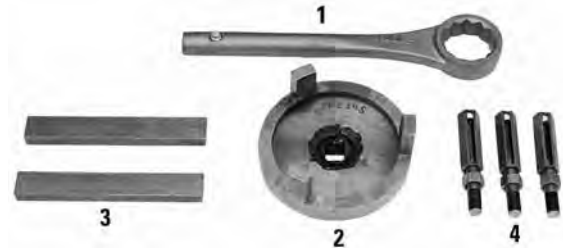
SMCS Code: 5163-016

Model: 55, 56, 57, 58 and 59 Towing Winches

Warranty: Six Months

- 4 special tools for assembly operations on Caterpillar towing winches
— 2 available from Parts Department, 2 fabricated

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.



Item	Part No.	Description	No. Req'd	Winch Models	Use
1	6V-9454	Wrench	1	All	Tighten Winch mounting stud nuts
2	—	Spanner Wrench	1	57, 58, 59	Tighten Drum Shaft Nuts
3	FT1037	Gauging Bar	2	57, 58, 59	Sets and measures distance between bevel gears on directional clutch shaft
4	FT1068	Jack Assemblies	3	55, 56	Sets distance between bevel gears on directional clutch shaft

2P-8330 Blade Control Test Group Discontinued — Service Parts Available

6D-6680 Tool Group Discontinued — Service Parts Available

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

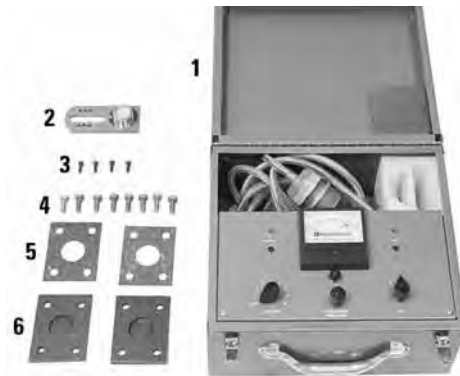
References

GEG02370, Special Instruction, Testing and Calibrating 2P-8330 Group

FEG00020-30, Methods and Equipment Bulletin, dated 2-75

Item	Part No.	Description	Qty.
1	—	Test Group	
2	—	Level Assembly ¹	
3	5S-2671	Screw ¹	4
4	4M-0061	Bolt ¹	8
5	—	Cover ¹	2
6	—	Gasket ¹	2

All part numbers in the table have a six month warranty

¹ Part of 6D-6680 Tool Group

FT1080 Power Pendulum Test Fixture

SMCS Code: 5216-036

Model: All Caterpillar Motor Graders

Warranty: None

- Used to bench test power pendulum of Automatic Blade Control
- Holds power pendulum, retains windup of pendulum clock spring, and provides for leveling pendulum in order to check and adjust phase of feedback pot
- Power for test supplied from external source through jacks provided on discontinued 2P-8330 ABC Test Group

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.



Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

Implements, Frame, Hitch and Suspension

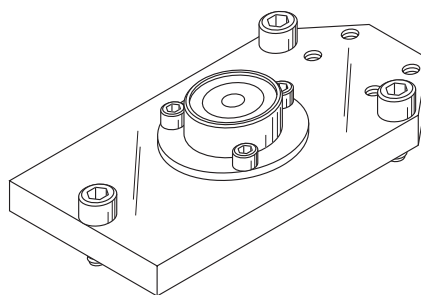
FT1116 Level Checking Fixture

SMCS Code: 5216-036

Model: Caterpillar Motor Graders

Warranty: None

- Provides small surface plate used to check and adjust 3P-1530 Level Assembly, part of 2P-8340 Automatic Blade Control Test Arrangement



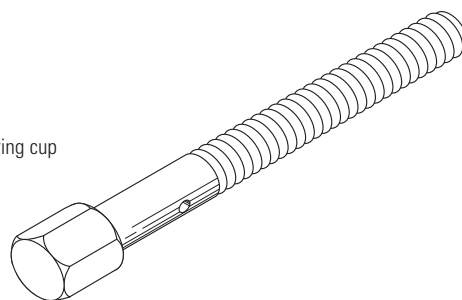
FT1248 Adjusting Screw

SMCS Code: 5200-036

Model: 12G, 14G, 130G, and 140G Motor Graders

Warranty: None

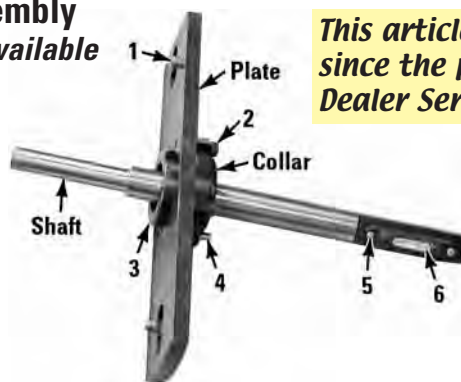
- Used with 8D-7554 Bearing Cup Puller Assembly to pull worm circle drive inboard bearing cup
- Required because of close clearance within circle drive housing



5P-3030 Pendulum Tool Assembly *Discontinued — Service Parts Available*

Item	Part No.	Description	Qty.
1	8M-6521	Dowel	2
2	1T-0284	Screw	4
3	3H-1394	Setscrew Pin	
4	3H-0702	Pin	
5	2D-3077	Screw	2
6	9D-9206	Level	

All part numbers in the table have a six month warranty



This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Bearing Puller Studs

SMCS Code: 7057-010

Model: G Series and 120G Motor Graders

Warranty: Six Months

- 5P-4184 Stud used with other standard 1.25 inch-12 thread bearing puller adapters and 6V-3175 Hydraulic Puller to remove and install articulated hitch bearing and collar on all "G" series motor graders; can also be used for other applications
- 5P-4776 Stud used with 6V-3160 Hydraulic Puller and standard bearing puller adapters that have 1.00 inch-14 threads; fully adjustable and especially useful when working in area with close clearance, such as when removing centershift lockplate bushings on 120G Motor Graders



Part No.	Length	Threaded
5P-4184	457 mm (18.0 in)	1.25 in-12 NF
5P-4776	457 mm (18.0 in)	1.00 in-14

Bearing Puller Adapters

SMCS Code: 5200-010

Model: "G" Series Motor Graders

Warranty: Six Months

- 5P-2145 Puller Adapter used with loader linkage pin tools to install wheel lean arm bearing on No. 16G Motor Graders
- 5P-4749 Puller Adapter used to install centershift lock plate bushings on 12G, 130G, and 140G Motor Graders
- FT1247 Puller Adapter used in installing centershift lock plate bushings on 120G Motor Grader; fabricated from 1P-1833 Puller Adapter



Typical Puller Adapter

271-2769 Lift Adapter Assembly

Model: 14M, 140M, 16M, and 160M Motor Grader

Essential Tool

Warranty: Six Months

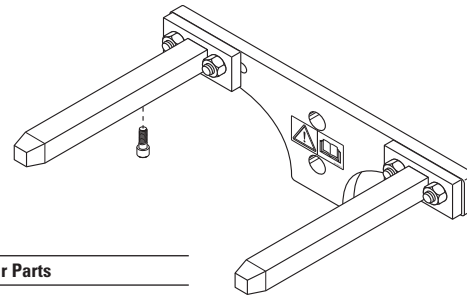
European Union compliant, CE marked

NEW TOOL

- Used to remove and install air conditioner unit
- Used with 226-2380 Multi-Purpose Lifting Bracket Group
- Adjustable for various sizes of air conditioner units

Reference

NEHS0979, 271-2769 Lifting Adapter



Service/Repair Parts	
Part No.	Description
224-0554	Warning Film
1L-0509	Socket Head Cap Screw (3/8-16)
1A-1460	Bolt (1/2-13) (fork mounting hardware)
1F-7958	Full Nut (1/2-13) (fork mounting hardware)
5P-8245	Hard Washer (fork mounting hardware)

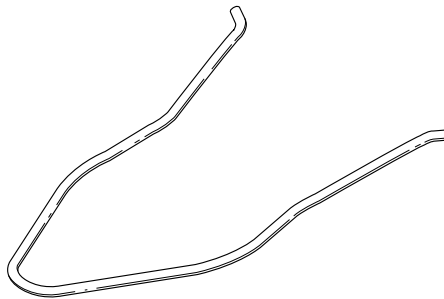
FT1424 Installer Tool

SMCS Code: 5200-010

Model: "G" Series Motor Graders

Warranty: None

- Makes it easier to install rubber boots on implement control valve



FT1467 Box Wrench

SMCS Code: 5150-010

Model: 55 and 56 Winches

Warranty: None

- Used to tighten 4 lower nuts which hold No. 55 and 56 Winches to tractor transmission case
- Serves as extension for 9S-7353 Torque Wrench so torque computer, Form SEHS7150, can be used to determine correct dial reading



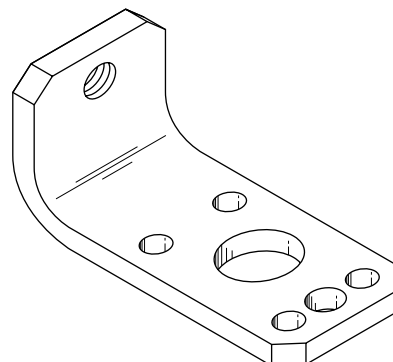
FT1411 Bracket

SMCS Code: 4267-017, 3101-017, 3280-017

Model: 773B, 776, 77B, 825C, 826C

Warranty: None

- Used with 1P-7409 Eyebolt to aid in removal and installation of winch drum support on 58 or 59 Winch



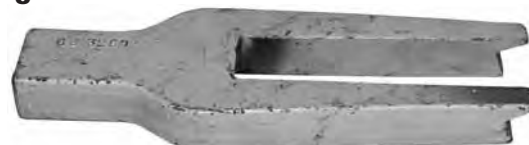
6B-3260 Scarifier Tooth Removing Tool

SMCS Code: 6162-011

Model: Most Caterpillar Motor Graders

Warranty: Six Months

- Used to remove scarifier teeth on most motor graders



Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

Implements, Frame, Hitch and Suspension

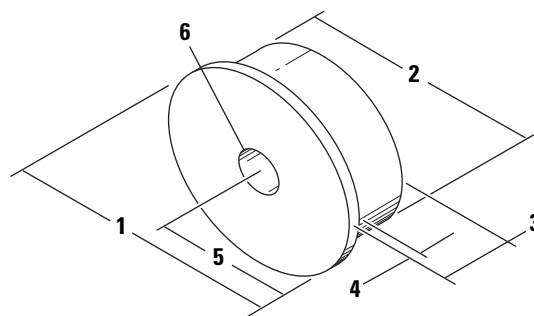
Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and AssemblyMotor Grader Controls,
Cable Control and WinchLoader Lift Arm and
Excavator ImplementImplements, Frame,
Hitch and Suspension

No. 16 Motor Grader Bearing Adapters

SMCS Code: 5200-010
Model: 16 Motor Grader
Warranty: None



Item	Part No.	Description	Material	Used with
1	FT0816	Worm Shaft Bearing Adapter	SAE 1020 Steel	Necessary pullers to remove circle reverse control worm shaft bearing
2	FT0817	Worm Gear Shaft Bearing Adapter	SAE 1020 Steel	Necessary pullers to remove circle reverse control worm gear shaft bearing
3	FT0818	Wheel Tie Bar Bearing Adapter	SAE 1020 Steel	Necessary pullers to remove leaning wheel tie bar bearing
4	FT0819	Pitman Arm Upper Bearing Adapter	SAE 1020 Steel	Necessary pullers to remove pitman arm upper bearing
5	FT0820	Pitman Arm Lower Bearing Adapter	SAE 1020 Steel	Necessary pullers to remove pitman arm lower bearing

FT3054 Grapple Cylinder Support Assembly

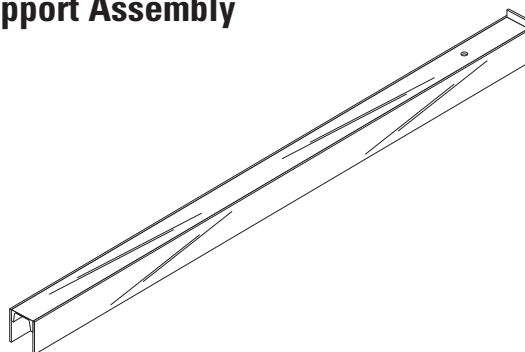
SMCS Code: 6307, 5555
Model: 525C (5251-Up) Wheel Skidder
Warranty: None

NEW TOOL

- Used to support grapple cylinder during removal from the grapple assembly

Reference

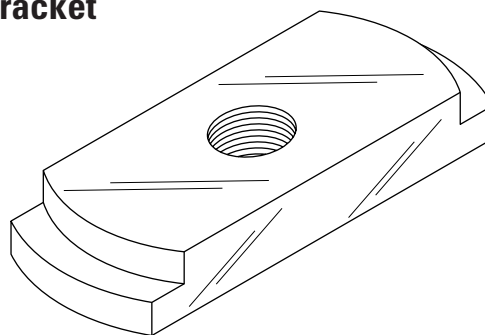
REN8901, Tong Cylinder
– Remove and Install



FT0823 Power Control Lifting Bracket

SMCS Code: 5201-011
Model: No. 12F, No. 14E and No. 16 Motor Graders
Warranty: None

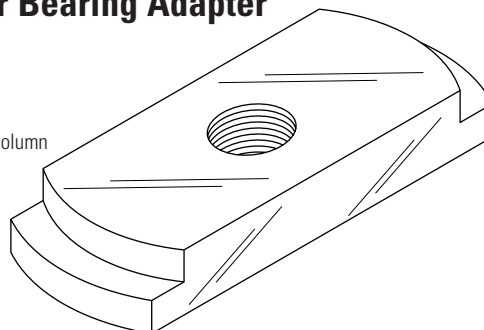
- Used to remove power control box



FT0821 Column Housing Upper Bearing Adapter

SMCS Code: 5200-011
Model: No. 16 Motor Grader
Warranty: None

- Used with necessary pullers to remove power control column housing upper bearing



Templates

SMCS Code: 5200-024

Model: 12G, 14G, 16G, 120G, 130G and 140G Motor Graders

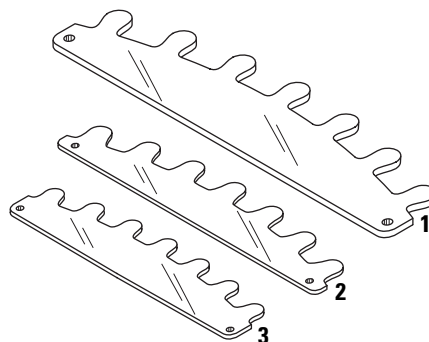
Warranty: Six Months

- Used to hold and align motor grader circle tooth segments for faster, easier installation
- 319-5038 Template replaces 6V-7808 Template

Reference

SMHS7268-0, Special Instruction

Item	Part No.	Model
1	319-5038	12G (61M), 120G, 130G (74V, 12W), 140G (72V, 81V, 13W)
2	6V-6037	16G (93U)
3	6V-6039	14G (96U)



Loader Lift Arm and Excavator Implement

Bucket Linkage Pin Removal and Installation Tools

SMCS Code: 6108-010

Model: Most Caterpillar Loaders and Excavators

Warranty: Six Months

- Used for linkage pin removal and installation on loaders and excavators with linkage pins equipped with the following sizes of puller holes:
 - 22.23 mm (7/8 in) — 14
 - 25.40 mm (1 in) — 14
 - 31.75 mm (1 1/4 in) — 12
 - 38.10 mm (1 1/2 in) — 12
 - 50.80 mm (2 in) — 12
- To clean puller holes in loader linkage pins, use the following thread taps:
 - 1P-7421 Tap, 1 inch — 14 thd
 - 1P-3042 Tap, 1 1/4 inch — 12 thd
 - 1P-3044 Tap, 1 1/2 inch — 12 thd
 - 1P-7422 Tap, 2 inch — 12 thd
- Refer to charts on following pages for tools required for each machine



Not shown	
1P-0543	Fast Runner Nut
1P-0544	Fast Runner Nut
FT0768	Holder Assembly

Item	Part No.	Description
1	9S-5556 9U-6226	Adapter, 1 1/2 in Pin Puller Adapter, M36 x 4 thread (not shown)
2	9S-5557	Adapter, 2 in
3	9S-5433	Puller Adapter (3)
	5H-6197	Pin (3)
	8S-6377	Lock (3)
4	9S-5431	Sleeve Assembly
5	9S-5565	Sleeve Assembly
6	8S-6586	Forcing Screw, 1 in
7	9S-5564	Sleeve Assembly
8	—	Cap - Driver, 2 in
9	9S-5561	Cap - Driver, 1 1/2 in
10	9S-5562 9S-5563	Cap - Driver, 1 1/4 in Cap - Driver, 1 in (not shown)
11	8S-6587	Adapter, 1 1/4 in
12	5P-6581 5P-7288	Adapter, 215 Excavator (not shown) Sleeve Assembly, 215 Excavator

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Reference

GMG00806, Special Instruction

Pin Removal/Installation Tooling

SMCS Code: 5451, 5452, 5456, 5457, 5458, 6101, 6108, 6500, 6501, 6502, 6503, 6505, 6509, 6513-010

Model: M300 Series Wheeled Excavator; 300 Series Track Excavators; 5080 Front Shovel; General Purpose Pin Pulling

Warranty: Six Months

Receiving Sleeves and Adapter Plates

- Used to easily and quickly remove and install linkage and/or cylinder pins located in front linkages of hydraulic excavators and front shovels
- Longer boom pins, with an M30 or smaller threaded puller hole, are easily removed by using 9U-5266 Sleeve Assembly and 9U-5340 Sleeve Extension and 9U-5341 Adapter Plate
- Large linkage pins, with M36 or M48 threaded puller holes, are easily removed with 9U-6751 and 9U-6752 Receiving Sleeves and 1U-6150, 9U-6754, 9U-6755, 9U-6756, and 9U-6757 Adapter Plates
- Adapter plates attach to bottom of 9U-6751 and 9U-6752 Receiving Sleeves, allowing removal of smaller diameter linkage pins with larger diameter receiving sleeves, thus eliminating a need for many additional sleeves
- 141-1785 Sleeve Assembly is used to remove boom pin from 322B, 322B LL, 325B, 325B LL, 330B, 330B LL, and 345B (provides necessary clearance to hydraulically remove boom pin without first removing fuel tank)
- Most adapter plates are attached using 6V-5192 Socket Head Cap Screws (except 9U-5341 Adapter Plates)
- 287-2153 Sleeve Assembly is used to remove boom-to-stick pin on 330D Hydraulic Excavator

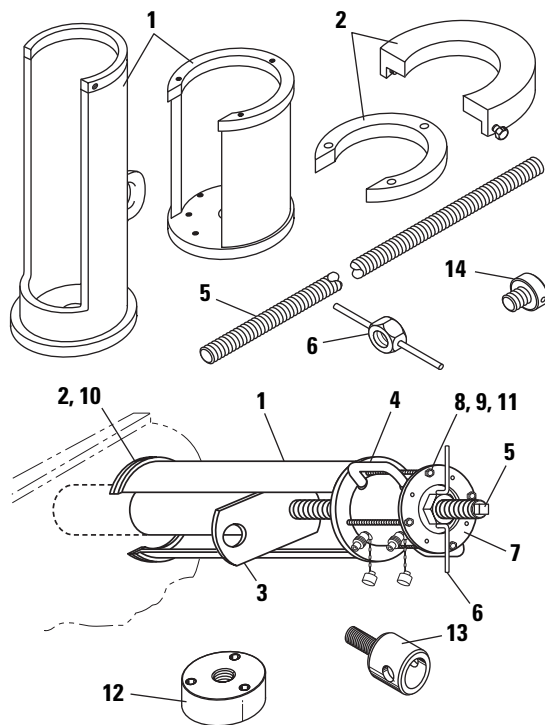
This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Threaded Puller Studs and Fast Runner Nuts

- Fast runner nuts make removal of linkage pins faster and easier
- Metric puller studs are essential for the removal of linkage pins used in the M300-Series Wheeled Excavators, 300-Series Track Excavators, and 5080 Front Shovels

Pin Driver Caps

- Used to protect end of linkage pins during installation
- Caps can be hit with sledge hammer to drive pins into bores
- 4 sizes of caps are available to fit various pin sizes



Additional Tooling

9U-6753 Retaining Plate

- Used to attach 1U-5197 Cylinder (80 ton) and **discontinued** 6V-0014 Cylinder (100 ton) to 9U-6751, 9U-6752, and 141-1985 Receiving Sleeves
- Used with four 9R-3979 Rods, four 8T-4121 Washers, four 8T-4133 Nuts, and 9U-6753 Retaining Plate to safely lift receiving sleeve and hydraulic cylinder as one complete unit

9U-7218 Bearing Puller Plate

- Used to remove boom cylinder (rod end) to boom linkage pin from 375 Excavators
- Allows boom cylinder pins to be removed from either direction
- Either boom cylinder can be removed without having to completely remove cylinder linkage pin

9U-6226 Pin Puller Adapter

- Used to remove boom foot pin from 330 Excavator
- Used with bucket linkage pin removal and installation tools

References

M300-Series Service Manuals

300 Series Service Manuals

5080 Front Shovel Service Manuals

Tools and Shop Products Guide article "Bucket Linkage Pin Removal and Installation Tools"

REN8648, 330D Machine Systems

Item	Part No.	Description
1		Sleeve Assembly
2		Adapter Plate
3		Pin Assembly
4	316-1491	Cylinder Group or 80 Ton Cylinder Group
5		Puller Stud
6		Fast Runner Nut
7		Retaining Plate
8	9R-3979	Rod
9	8T-4133	Nut
10	6V-5192	Socket Head Bolt
11	8T-4121	Washer
12	9U-6226	Pin Puller Adapter
13	9U-7218	Bearing Puller Plate
14		Pin Driver Cap

Receiving Sleeve Assemblies (1)

Part No.	Description	Maximum Pin Diameter (3)	Maximum Pin Length (3)	Max. Width of Tear Drop or Flag Retainer	Maximum Puller Stud Diameter (5)	Maximum Capacity
9U-5266	Sleeve Assembly	127 mm (5.0 in)	366 mm (14.4 in)	114 mm (4.5 in)	35 mm (1.4 in)	54 t (60 tons)
FT3082	Sleeve Assembly	127 mm (5.0 in)	366 mm (14.4 in)	114 mm (4.5 in)	40 mm (1.5 in)	54 t (60 tons)
9U-5340	Extension Sleeve Assembly ¹ (includes three OS-1615 Bolts)	127 mm (5.0 in)	303 mm (11.9 in)	114 mm (4.5 in)	35 mm (1.4 in)	54 t (60 tons)
9U-6751	Sleeve Assembly	216 mm (8.5 in)	330 mm (13.0 in)	164 mm (6.5 in)	52 mm (2.0 in)	90 t (100 tons)
9U-6752	Sleeve Assembly	216 mm (8.5 in)	1143 mm (45.0 in)	164 mm (6.4 in)	52 mm (2.0 in)	90 t (100 tons)
141-1785	Sleeve Assembly	146 mm (5.7 in)	1143 mm (45.0 in)	146 mm (5.7 in)	68 mm (2.7 in)	90 t (100 tons)
4C-8163	Sleeve Assembly	165 mm (6.5 in)	890 mm (35.0 in)		70 mm (2.8 in)	136 t (150 tons)
287-2153	Sleeve Assembly	152 mm (6.0 in)	812 mm (31.9 in)	152 mm (6.0 in)	36 mm (1.4 in)	72 t (80 tons)
FT2457	Receiving Sleeve					

¹ Used with 9U-5266 Receiving Sleeve

Adapter Plates (2)

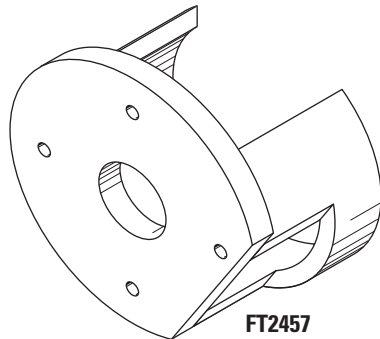
Part No.	Description	Maximum Pin Diameter	Max. Width of Tear Drop or Flag Retainer	Maximum Width	Maximum Capacity
9U-5341	Adapter Plate Assembly ¹ (includes three 0S-1615 Bolts)	104 mm (4.1 in)	114 mm (4.5 in)		54 t (60 tons)
1U-6150	Adapter Plate ²	44 mm (1.7 in)	156 mm (6.1 in)	130 mm (5.1 in)	90 t (100 tons)
9U-6754	Adapter Plate ²	31.8 mm (1.25 in)	187 mm (7.4 in)	130 mm (5.1 in)	90 t (100 tons)
9U-6755	Adapter Plate ²	38.1 mm (1.5 in)	118 mm (4.6 in)		90 t (100 tons)
9U-6756	Adapter Plate ²	31.8 mm (1.25 in)	151 mm (5.9 in)		90 t (100 tons)
9U-6757	Adapter Plate ²	25.4 mm (1.0 in)	196 mm (7.7 in)	164 mm (6.5 in)	90 t (100 tons)

¹ Used with 9U-5266 Receiving Sleeve

² These plates are used with 9U-6751 and 9U-6752 Sleeve Assemblies

Puller Studs (5)

Part No.	Description	Thread Size	Length	Max. Capacity
9U-5343	Puller Stud	M24 x 3.0	650 mm (25.6 in)	27 t (30 tons)
9U-5344	Puller Stud	M30 x 3.5	800 mm (31.5 in)	45 t (50 tons)
9U-6811	Puller Stud	M36 x 4.0	1575 mm (62.0 in)	72 t (80 tons)
9U-6812	Puller Stud	M48 x 5.0	381 mm (15.0 in)	90 t (100 tons)
9U-6813	Puller Stud	M48 x 5.0	508 mm (20.0 in)	90 t (100 tons)
9U-6814	Puller Stud	M48 x 5.0	920 mm (36.2 in)	90 t (100 tons)
9U-6815	Puller Stud	M48 x 5.0	1575 mm (62.0 in)	90 t (100 tons)
9U-7998	Puller Stud	M36 x 4.0	920 mm (36.2 in)	72 t (80 tons)
137-8460	Puller Stud	M30 x 3.5	1980 mm (78.0 in)	45 t (50 tons)



Fast Runner Nuts (6)

Part No.	Description	Thread Size	Hex Size
9U-5345	Fast Runner Nut Assembly	M24 x 3.0	36 mm (1.4 in)
9U-5346	Fast Runner Nut Assembly	M30 x 3.5	46 mm (1.8 in)
9U-6809	Fast Runner Nut Assembly	M36 x 4.0	55 mm (2.2 in)
9U-6810	Fast Runner Nut Assembly	M48 x 5.0	75 mm (3.0 in)

9U-6226 Pin Puller Adapter (12)

Inside diameter	63.5 mm (2.50 in)
Length	152 mm (6.0 in)
Thread size	M36 x 4.0

9U-7218 Bearing Puller Plate (13)

Outside diameter	127 mm (5.0 in)
Length	50.8 mm (2.00 in)
Thread size	M30 x 3.5
Maximum Capacity	45 t (50 tons)

Pin Driver Caps (14)

Part No.	Description	Thread Size
9U-5342	Pin Driver Cap	M24 x 3.0
4C-9485	Pin Driver Cap	M30 x 3.5
9U-6225	Pin Driver Cap	M36 x 4.0
9U-6758	Pin Driver Cap	M48 x 5.0

FT0768 Pin Holder Assembly

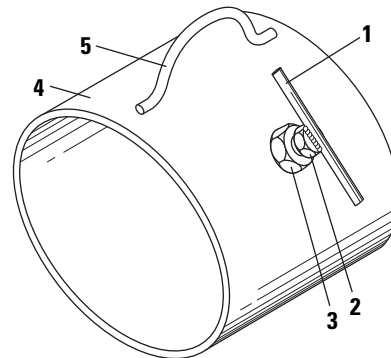
SMCS Code: 6108-010

Model: Most Caterpillar Loaders and Excavators

Warranty: None

- Used for linkage pin removal and installation on loaders and excavators

Item	Part No.	Description
1		Steel Rod
2	4B-3617	Setscrew
3	1D-4719	Nut
4		Steel Tubing
5		Steel Rod



994 Wheel Loader Tools

SMCS Code: 0601, 0602, 0671; 3258-017, 3260-010, 3271-017, 5102-010, 5104-010, 6101-010, 6107-010, 7054-010, 7252-010, 7253-010, 7302-010, 7323-010

Model: 994 Wheel Loader

Warranty: Six Months

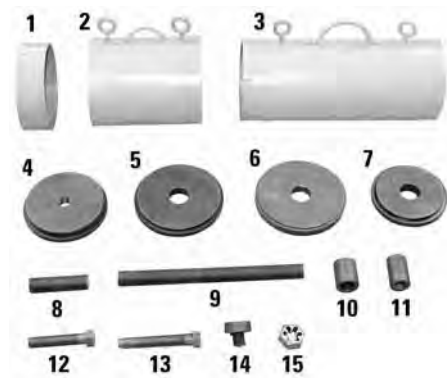
- Used to remove and install loader arm linkage

References

SENR4755, 994 Vehicle Systems Disassembly and Assembly

SEHS9272, 994 Field Assembly

994 Loader Arm Linkage Tools



4C-9493 Receiving/Handling Sleeve (Item 1)

- Supports hydraulic cylinder and serves as receiving sleeve during hydraulic removal/pulling of collets during disassembly
- Through hole allows use with 50.8 mm (2 in) or smaller puller stud

ID	228 mm (9 in)
Overall length	185 mm (7.28 in)
Through hole	52.5 mm (2 in)
Maximum force	100 tons

4C-9491 Receiving/Handling Sleeve (Item 2)

- Serves as receiving sleeve for linkage pins and bearings during disassembly

ID	228 mm (9 in)
Overall length	300 mm (11.8 in)
Maximum force	100 tons

FT2384 Receiving/Handling Sleeve (Item 3)

- Used, if required, for longer pins during removal

Maximum force	100 tons
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4C-9488 Adapter (Item 4)

- Used to remove and install 22.2 mm (8.74 in) outside diameter bearings

Outside diameter	21.80 cm (8.58 in)
Pilot diameter	20.2 cm (7.95 in)
Center hole for puller stud	1½ in-12 thd
Maximum force	100 tons

4C-9490 Bearing Step Plate (Item 5)

- Assures 22.2 cm (8.74 in) diameter. bearings are pulled in to proper depth during installation

Step	22.0 cm (8.66 in) diameter, 10.25 mm (0.40 in) deep
Center hole diameter	52.5 (2 in)
Maximum force	100 tons

4C-9492 Head Plate (Item 6)

- Used between either 4C-9491 Sleeve (2)

Maximum force	100 tons
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4C-9489 Bearing Step Plate (Item 7)

- Assures that 18.4 cm (7.24 in) diameter. bearings are pulled in to proper depth during installation
- Two 18.2 cm (7.17 in) diameter pilots: 8.6 mm (0.34 in) deep, 10.5 mm (0.41 in) deep

FT2371 Stud (Item 8) and FT2370 Stud (Item 9)

- Made by cutting existing 5P-7273 Stud

Maximum force	100 tons
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4C-9487 Coupler (Item 10)

- Used to connect 2 puller studs
- Threads: 1½ inch-12 (female), in each end

Maximum force	70 tons
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4C-9486 Adapter/Coupler (Item 11)

- Used to adapt or connect 2 different threads when required
- Threads: 1¼ inch-12 (female), in one end; and M30 x 3.5 (female) threads in the other

4C-9432 (Item 12) and 4C-9431 (Item 13) Forcing Bolts

- Both have "rolled threads" which provide greater strength

"Rolled threads"	1 in — 14
Hex heads	38.1 mm (1.5 in)
Overall length:	
4C-9431	244 mm (9.6 in)
4C-9432	140 mm (5.5 in)

4C-9485 Cap Driver (Item 14)

- Used to provide striking surface other than collet itself when installing lift arm to main frame collet (striking collet could result in damage to threaded holes from "mushrooming")
- Flat striking surface
- Thread: M30 x 3.5 (male)

4C-6722 Rethreading Die (Item 15)

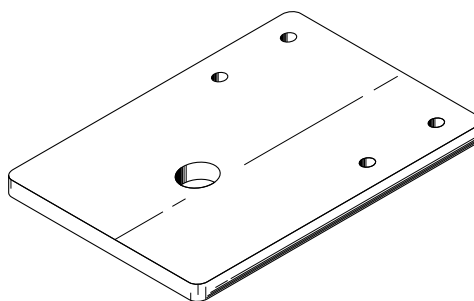
- Used for repair or threading of M30 x 3.5 threads
- Threads on rods in 994 loader linkage can become damaged or rusted — repair much less expensive than replacement

206-3481 Adapter Plate

SMCS Code: 6107-010
Model: 994D Wheel Loader
Essential Tool
Warranty: Six Months

European Union compliant, CE marked

- Used to lift and install hollow linkage pins with 38 mm (1.5 in) center hole (loader arm)
- Used with 128-4775 Lifting Bracket Assembly



Reference

REN2038, Service Manual

Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and Assembly

Motor Grader Controls,
Cable Control and Winch

Loader Lift Arm and
Excavator Implement

Implements, Frame,
Hitch and Suspension

245 Front Shovel Linkage Pin Puller Tools

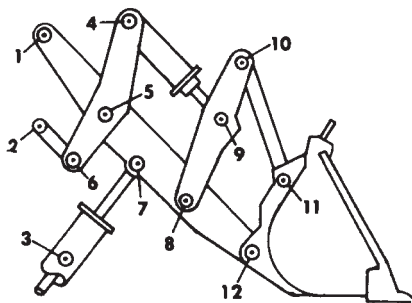
SMCS Code: 6108-010
Model: Most Caterpillar Loaders and Excavators
Warranty: Six Months

- 5P-7370 Sleeve Assembly and three to six adapters are used with 9S-8901 Cylinder Group for linkage pin removal on 245 Front Shovel
- Can be used for pins not more than 165.1 mm (6.50 in) in diameter and will also accommodate 152.4 mm (6.00 in) and 165.1 mm (6.50 in) diameter pins with teardrop or flag retainers welded to end
- Refer to Service Manual

Item	Part No.	Description
1	5P-7370	Sleeve Assembly
2	—	Adapter



Loader Linkage Pin Tool



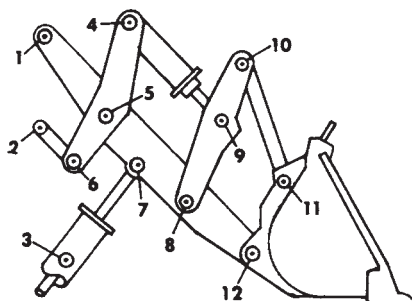
955 Pin Removal (Pin Location)												
Part No.	Tools Required	1	2	4	5	6	7	8	9	10	11	12
6V-3160	Puller (30 ton) ¹						1	1		1	1	1
5H-6197	Pin				1							
6V-3170	Puller (50 ton) ¹	1	1	1		1			1			
9S-8901	Cylinder (90 ton In) ¹				1							
6H-4158	Pin				2							
7M-9772	Pin				1							
7M-9774	Adapter Coupling				1							
8S-6377	Lock				1							
5P-6581	Adapter (7/8 -14)						1	1		1	1	1
9S-5431	Sleeve Assembly				1							
—	Adapter				1							
9S-5556	Adapter (1 1/2 -12)				1							
1P-3044	Tap (1 1/2 -12)				1							
4C-9634	Stud (1 1/4 -12)	1	1	1		1			1			
1P-3042	Tap (1 1/4 -12)	1	1	1		1			1			
—	Stud (1-14)						1	1		1	1	1
1P-7421	Tap (1-14)						1	1		1	1	1
9S-5564	Sleeve Assembly	1	1	1		1			1			
9S-5565	Sleeve Assembly						1	1		1	1	1
1P-0543	Fast Runner Nut						1	1		1	1	1
9U-6832	Fast Runner Nut	1	1	1		1			1			

¹ Also requires one of the following pumps: 3S-6224 (115 V), 8S-8033 (230 V)

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

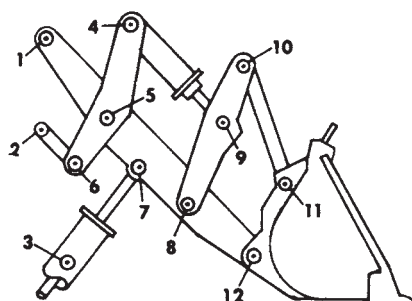
Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and AssemblyMotor Grader Controls,
Cable Control and WinchLoader Lift Arm and
Excavator ImplementImplements, Frame,
Hitch and Suspension

992 Pin Removal (Pin Location)

Part No.	Tools Required	1	2 ¹	4	5	6	7	8	9	10	11	12
9S-8900	Cylinder (55 ton In) ²				1							
5H-6197	Pin	3	1		2			1	2			2
6V-3170	Puller (50 ton) ²			1						1	1	
—	Sleeve Assembly						1 ³					
9S-8901	Cylinder (90 ton In) ²	1	1			1	1	1	1			1
6H-4158	Pin	2	2		2	2	2	2	2			2
9H-3992	Head						1 ³					
7M-9772	Pin	1	1		1	1	1	1	1			1
7M-9774	Adapter Coupling	1	1		1	1	1	1	1			1
8S-6377	Lock	3	1		2			1	2			2
9S-5431	Sleeve Assembly	1	1		1	1	1 ⁴	1	1			1
9S-5433	Puller Adapter	3	1		2			1	2			1
9S-5556	Adapter (1½ -12)		1			1		1	1			1
1P-3044	Tap (1½ -12)		1			1		1	1			1
9S-5557	Adapter (2-12)	1			1		1					
1P-7422	Tap (2-12)	1			1		1					
4C-9634	Stud (1¼ -12)			1						1	1	
1P-3042	Tap (1¼ -12)			1						1	1	
9S-5564	Sleeve Assembly			1						1	1	
9U-6832	Fast Runner Nut			1						1	1	

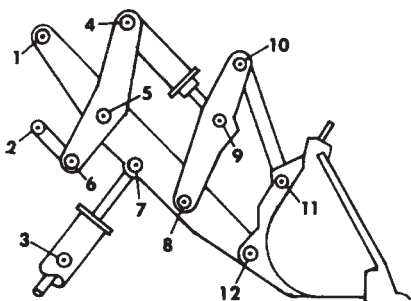
¹ Inside pin can be driven inward after suggested tooling is used to pull outside pin² Also requires one of the following pumps: 3S-6224 (115 V), 8S-8033 (230 V)³ K1-25K698⁴ 5K699-Up

988 Pin Removal (Pin Location)

Part No.	Tools Required	1	2 ¹	4	5	6 ¹	7	8	9	10	11	12
8B-7548	Bearing Puller Assembly						1					
8B-7563	Handle						1					
6V-3160	Puller (30 ton) ²		1	1		1		1	1	1	1	1
—	Pin				2							
6V-3170	Puller (50 ton) ²	1										
9S-8901	Cylinder (90 ton In) ²				1							
6H-4158	Pin				2							
8H-0684	Wrench-Ratchet						1					
7M-9772	Pin				1							
7M-9774	Adapter Coupling				1							
8S-6377	Lock				2							
8S-6586	Screw, Forcing (1-14)						1					
8S-6587	Adapter (1¼ -12)						1					
9S-5431	Sleeve Assembly				1							
9S-5433	Puller Adapter				2							
9S-5556	Adapter (1½ -12)				1							
1P-3044	Tap (1½ -12)				1							
4C-9634	Stud (1¼ -12)	1										
1P-3042	Tap (1¼ -12)	1										
—	Stud (1-14)		1	1		1		1	1	1	1	1
1P-7421	Tap (1-14)		1	1		1		1	1	1	1	1
9S-5564	Sleeve Assembly	1		1					1			
9S-5565	Sleeve Assembly		1			1		1		1	1	1
1P-0543	Fast Runner Nut		1	1		1		1	1	1	1	1
9U-6832	Fast Runner Nut	1										

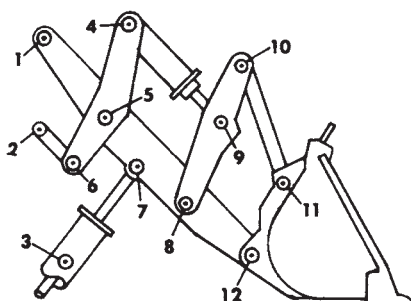
¹ Inside pin can be driven inward after suggested tooling is used to pull outside pin² Also requires one of the following pumps: 3S-6224 (115 V), 8S-8033 (230 V)

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.



983 Pin Removal (Pin Location)												
Part No.	Tools Required	1	2	4	5	6	7	8	9	10	11	12
6V-3160	Puller (30 ton) ¹							1		1	1	
—	Pin				1							
6V-3170	Puller (50 ton) ¹	1	1	1		1	1		1			1
9S-8901	Cylinder (90 ton In) ¹				1							
6H-4158	Pin				2							
7M-9772	Pin				1							
7M-9774	Adapter Coupling				1							
8S-6377	Lock				2							
9S-5431	Sleeve Assembly				1							
9S-5433	Puller Adapter				1							
9S-5557	Adapter (2-12)				1							
1P-7422	Tap (2-12)				1							
4C-9634	Stud (1¼ -12)	1	1	1		1	1		1			1
1P-3042	Tap (1¼ -12)	1	1	1		1	1		1			1
—	Stud (1-14)							1			1	
1P-7421	Tap (1-14)							1			1	
9S-5564	Sleeve Assembly	1	1	1		1	1	1	1			1
9S-5565	Sleeve Assembly									1	1	
1P-0543	Fast Runner Nut							1			1	
9U-6832	Fast Runner Nut	1	1	1		1	1		1			1

¹ Also requires one of the following pumps: 3S-6224 (115 V), 8S-8033 (230 V)



980 Pin Removal (Pin Location)												
Part No.	Tools Required	1	2 ¹	4	5	6 ¹	7	8	9	10	11	12
8B-7548	Bearing Puller Assembly						1					
8B-7563	Handle						1					
6V-3160	Puller (30 ton) ¹		1	1		1		1	1	1	1	1
—	Pin				2							
6V-3170	Puller (50 ton) ²	1										
9S-8901	Cylinder (90 ton In) ²				1							
6H-4158	Pin				2							
8H-0684	Wrench-Ratchet						1					
7M-9772	Pin				1							
7M-9774	Adapter Coupling				1							
8S-6377	Lock				2							
8S-6586	Screw, Forcing (1-14)						1					
8S-6587	Adapter (1¼ -12)						1					
9S-5431	Sleeve Assembly				1							
9S-5433	Puller Adapter				2							
9S-5556	Adapter (1½ -12)				1							
1P-3044	Tap (1½ -12)				1							
4C-9634	Stud (1¼ -12)	1										
1P-3042	Tap (1¼ -12)	1										
—	Stud (1 -14)		1	1		1		1	1	1	1	1
1P-7421	Tap (1 -14)		1	1		1		1	1	1	1	1
9S-5564	Sleeve Assembly	1							1			
9S-5565	Sleeve Assembly		1	1		1		1		1	1	1
1P-0543	Fast Runner Nut		1	1		1		1	1	1	1	1
9U-6832	Fast Runner Nut	1										

¹ Inside pin can be driven inward after suggested tooling is used to pull outside pin

² Also requires one of the following pumps: 3S-6224 (115 V), 8S-8033 (230 V)

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

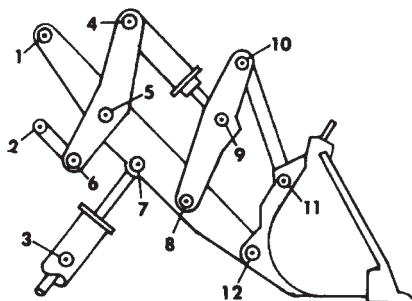
Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

Implements, Frame, Hitch and Suspension

Brake and
Steering Systems

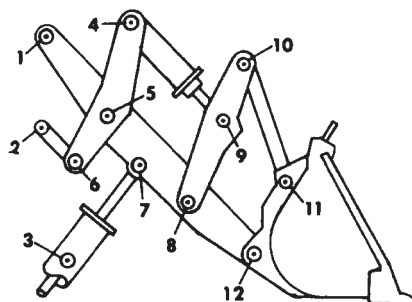
Hydraulic System Tools

Hydraulic Component
Disassembly and AssemblyMotor Grader Controls,
Cable Control and WinchLoader Lift Arm and
Excavator ImplementImplements, Frame,
Hitch and Suspension

977 Pin Removal (Pin Location)

Part No.	Tools Required	1L	1R	2	4	5	6	7	8	9	10	11	12
6V-3160	Puller (30 ton) ¹								1		1	1	1
—	Pin	1				1							
6V-3170	Puller (50 ton) ¹		1	1	1		1	1		1			
9S-8901	Cylinder (90 ton In) ¹	1				1							
6H-4158	Pin	2				2							
7M-9772	Pin	1				1							
7M-9774	Adapter Coupling	1				1							
8S-6377	Lock	1				1							
9S-5431	Sleeve Assembly	1				1							
9S-5433	Puller Adapter	1				1							
9S-5556	Adapter (1½ -12)	1											
1P-3044	Tap (1½ -12)	1											
9S-5557	Adapter (2-12)					1							
1P-7422	Tap (2-12)					1							
4C-9634	Stud (1¼ -12)		1	1	1		1	1		1			
1P-3042	Tap (1¼ -12)		1	1	1		1	1		1			
—	Stud (1-14)								1		1	1	1
1P-7421	Tap (1-14)								1		1	1	1
9S-5564	Sleeve Assembly		1	1	1		1	1		1			
9S-5565	Sleeve Assembly								1		1	1	1
1P-0543	Fast Runner Nut								1		1	1	1
9U-6832	Fast Runner Nut		1	1	1		1	1		1			

¹ Also requires one of the following pumps: 3S-6224 (115 V), 8S-8033 (230 V)



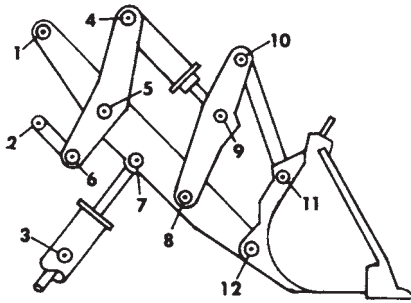
950 Pin Removal (Pin Location)

Part No.	Tools Required	1	2	4	5	6L	6R	7	8	9	10	11	12
8B-7548	Bearing Puller Assembly							1					
8B-7563	Handle							1					
6V-3160	Puller (30 ton) ¹		1	1		1		1	1	1	1	1	1
6V-3170	Puller (50 ton) ¹	1			1								
8H-0684	Wrench-Ratchet							1					
8S-6586	Screw, Forcing (1-14)							1					
5P-6581	Adapter (⅞ -14)							1					
4C-9634	Stud (1¼ -12)	1			1								
1P-3042	Tap (1¼ -12)	1			1								
—	Stud (1-14)		1	1		1		1	1	1	1	1	1
1P-7421	Tap (1-14)		1	1		1		1	1	1	1	1	1
9S-5564	Sleeve Assembly	1		1									
9S-5565	Sleeve Assembly	1		1		1		1	1	1	1	1	1
1P-0543	Fast Runner Nut		1	1		1		1	1	1	1	1	1
9U-6832	Fast Runner Nut	1			1								

¹ Also requires one of the following pumps: 3S-6224 (115 V), 8S-8033 (230 V)

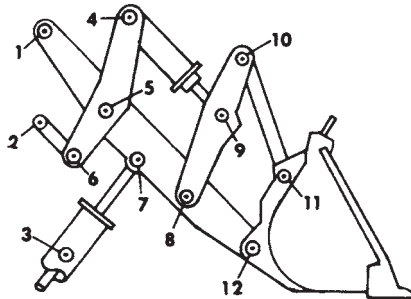
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Vehicle System Tools



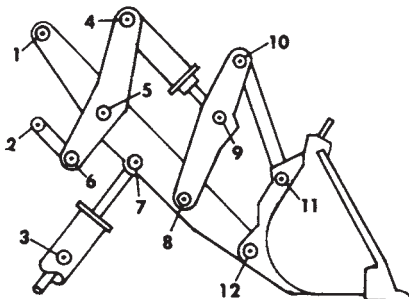
941 and 951 Pin Removal (Pin Location)												
Part No.	Tools Required	1	2	3	4	5	6	7	8	9	10	11 12
8B-7548	Bearing Puller Assembly			1								
8B-7549	Push Puller Leg			2								
8B-7563	Handle			1								
6V-3160	Puller (30 ton) ¹				1			1	1	1	1	1
6V-3170	Puller (50 ton) ¹	1	1			1	1					
8H-0684	Wrench-Ratchet			1								
8S-6586	Screw, Forcing (1-14)			1								
9S-5431	Sleeve Assembly				1							
4C-9634	Stud (1¼ -12)	1	1			1	1					
1P-3042	Tap (1¼ -12)	1	1			1	1					
—	Stud (1-14)				1			1	1	1	1	1
1P-7421	Tap (1-14)				1			1	1	1	1	1
9S-5564	Sleeve Assembly	1										
9S-5565	Sleeve Assembly	1		1		1	1	1	1	1	1	1
1P-0543	Fast Runner Nut			1				1	1	1	1	1
9U-6832	Fast Runner Nut	1	1			1	1					

¹ Also requires one of the following pumps: 3S-6224 (115 V), 8S-8033 (230 V)



930 Pin Removal (Pin Location)												
Part No.	Tools Required	1	2	3	4	5	6L	7	8	9	10	11 12
6V-3160	Puller Group (30 ton) ¹		1	1	1		1	1	1	1	1	1
6V-3175	Puller Group (50 ton) ¹	1				1						
6V-3170	Stud (1¼ -12)	1				1						
1P-3042	Tap (1¼ -12)	1				1						
—	Stud (1-14)		1	1	1		1	1	1	1	1	1
1P-7421	Tap (1-14)		1	1	1		1	1	1	1	1	1
9S-5564	Sleeve Assembly					1						
9S-5565	Sleeve Assembly	1	1	1	1		1	1	1	1	1	1
1P-0543	Fast Runner Nut		1	1	1		1	1	1	1	1	1
9U-6832	Fast Runner Nut	1				1						

¹ Also requires one of the following pumps: 3S-6224 (115 V), 8S-8033 (230 V)



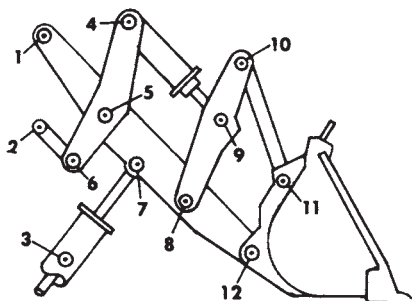
920 Pin Removal (Pin Location)									
Part No.	Tools Required	1	2	3	4	5	6L	7	9
8B-7548	Bearing Puller Assembly				1				
8B-7563	Handle				1				
6V-3160	Puller Group (30 ton) ¹		1			1		1	1
6V-3170	Puller Group (50 ton) ¹	1						1	
8H-0684	Wrench-Ratchet				1				
8S-6586	Screw, Forcing (1-14)				1				
4C-9634	Stud (1¼ -12)		1					1	
1P-3042	Tap (1¼ -12)		1					1	
—	Stud (1-14)		1			1		1	1
1P-7421	Tap (1-14)		1			1		1	1
9S-5565	Sleeve Assembly	1	1			1	1	1	1
9U-6832	Fast Runner Nut		1			1		1	1
1P-0544	Fast Runner Nut	1						1	

¹ Also requires one of the following pumps: 3S-6224 (115 V), 8S-8033 (230 V)

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

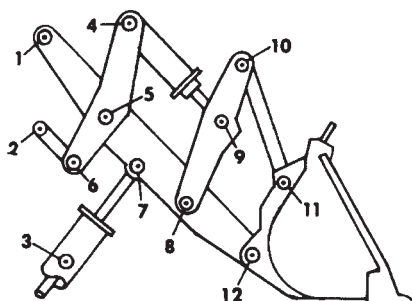
Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and AssemblyMotor Grader Controls,
Cable Control and WinchLoader Lift Arm and
Excavator ImplementImplements, Frame,
Hitch and Suspension

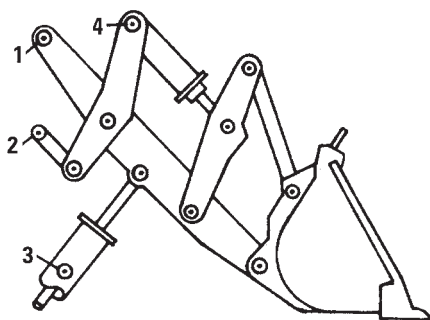
966 Pin Removal (Pin Location)												
Part No.	Tools Required	1	4	5	6L	6R	7	8	9	10	11	12
8B-7548	Bearing Puller Assembly					1						
8B-7563	Handle					1						
6V-3160	Puller (30 ton) ¹		1		1		1	1	1	1	1	1
6V-3170	Puller (50 ton) ¹	1		1								
8H-0684	Wrench-Ratchet					1						
8S-6586	Screw, Forcing (1-14)					1						
5P-6581	Adapter (7/8 -14)					1						
4C-9634	Stud (1 1/4 -12)	1		1								
1P-3042	Tap (1 1/4 -12)	1		1								
—	Stud (1-14)		1		1		1	1	1	1	1	1
1P-7421	Tap (1-14)		1		1		1	1	1	1	1	1
9S-5564	Sleeve Assembly	1		1								
9S-5565	Sleeve Assembly		1		1		1	1	1	1	1	1
1P-0543	Fast Runner Nut		1		1		1	1	1	1	1	1
9U-6832	Fast Runner Nut	1	1									

¹ Also requires one of the following pumps: discontinued 6F-0025, 3S-6224 (115 V), 8S-8033 (230 V)



Pin Installations All Machines					
Part No.	Tools Required	2 in Puller Holes	1 1/2 in Puller Holes	1 1/4 in Puller Holes	1 in Puller Holes
1P-3044	Tap (1 1/2 -12)		1		
1P-7422	Tap (2-12)	1			
1P-3042	Tap (1 1/4 -12)			1	
1P-7421	Tap (1-14)				1
9S-5561	Cap		1		
9S-5562	Cap			1	
9S-5563	Cap				1
FT0768	Linkage Pin Holder Assembly	1	1	1	1

Loader Lift Arm Bearing Tool



NOTE: FT0514 Handle can be made by dealers for use with 1P-1831, 1P-1832, 1P-1833 and 1P-1834 Adapters where manual driving of the bearings is desired.

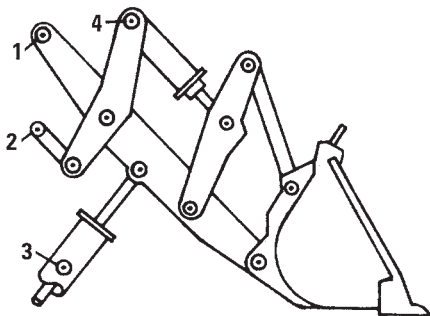
920 and 922 Wheel Loaders (Bearing Location)				
Part No.	Tools Required	1	3	4
8B-7548	Bearing Puller ¹ Assembly	1	1	
6V-3160	Puller Group (30 ton) ²	1	1	
1H-3107	Push-Puller ¹	1		
6V-3170	Puller Group (50 ton) ²	1		
4C-9634	Stud (1 1/4 -12)	1		
—	Stud (1-14)		1	1
9S-5564	Sleeve Assembly ³	1		
9S-5565	Sleeve Assembly ³		1	1
1P-0543	Fast Runner Nut		1	1
9U-6832	Fast Runner Nut	1		
1P-1831	Adapter-Bearing Pulling		1	1
1P-1835	Adapter-Bearing Pulling	1		

¹ Use crossbar from Push-Puller for installation only

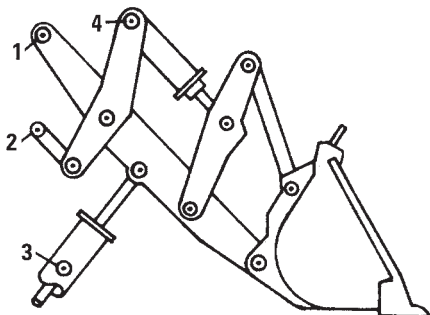
² Also requires one of the following pumps: 3S-6224 (115 V), 8S-8033 (230 V)

³ Used for removal only

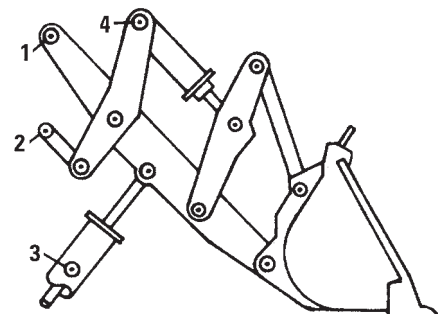
This article has changed since the printing of the 2009 Dealer Service Tools Catalog.



NOTE: FT0514 Handle can be made for use with 1P-1831, 1P-1832, 1P-1833 and 1P-1834 Adapters where manual driving of bearings is desired.



NOTE: FT0514 Handle can be made for use with 1P-1831, 1P-1832, 1P-1833 and 1P-1834 Adapters where manual driving of bearings is desired.



NOTE: FT0514 Handle can be made for use with 1P-1831, 1P-1832, 1P-1833 and 1P-1834 Adapters where manual driving of bearings is desired.

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

930 Wheel Loader (Bearing Location)				
Part No.	Tools Required	1	3	4
8B-7548	Bearing Puller ¹ Assembly	1	1	
6V-3160	Puller Group (30 ton) ²		1	1
1H-3107	Push-Puller ¹	1		
6V-3170	Puller Group (50 ton) ²	1		
4C-9634	Stud (1¼ -12)	1		
—	Stud (1-14)		1	1
9S-5564	Sleeve Assembly ³	1		
9S-5565	Sleeve Assembly ³		1	1
1P-0543	Fast Runner Nut		1	1
9U-6832	Fast Runner Nut	1		
1P-1832	Adapter-Bearing Pulling		1	1
1P-1836	Adapter-Bearing Pulling 1			

¹ Use crossbar from Push-Puller for installation only

² Also requires one of the following pumps: 3S-6224 (115 V), 8S-8033 (230 V)

³ Used for removal only

944 and 950 Wheel Loaders (Bearing Location)				
Part No.	Tools Required	1	3	4
8B-7548	Bearing Puller ¹ Assembly		1	1
6V-3160	Puller Group (30 ton) ²		1	1
1H-3107	Push-Puller ¹	1		
6V-3170	Puller Group (50 ton) ²	1		
4C-9634	Stud (1¼ -12)	1		
—	Stud (1-14)		1	1
9S-5564	Sleeve Assembly ³	1		
9S-5565	Sleeve Assembly ³		1	1
1P-0543	Fast Runner Nut		1	1
9U-6832	Fast Runner Nut	1		
1P-1832	Adapter-Bearing Pulling			1
1P-1833	Adapter-Bearing Pulling		1	
1P-1836	Adapter-Bearing Pulling 1		1	

¹ Use crossbar from Push-Puller for installation only

² Also requires one of the following pumps: 3S-6224 (115 V), 8S-8033 (230 V)

³ Used for removal only

966 Wheel Loader (Bearing Location)				
Part No.	Tools Required	1	3	4
8B-7548	Bearing Puller ¹ Assembly		1	1
6V-3160	Puller Group (30 ton) ²		1	1
1H-3107	Push-Puller ¹	1		
6V-3170	Puller Group (50 ton) ²	1		
4C-9634	Stud (1¼ -12)	1		
—	Stud (1-14)		1	1
9S-5564	Sleeve Assembly ³	1		
9S-5565	Sleeve Assembly ³		1	1
1P-0543	Fast Runner Nut		1	1
9U-6832	Fast Runner Nut	1		
1P-1833	Adapter-Bearing Pulling		1	1
1P-1838	Adapter-Bearing Pulling 1		1	

¹ Use crossbar from Push-Puller for installation only

² Also requires one of the following pumps: 3S-6224 (115 V), 8S-8033 (230 V)

³ Used for removal only

Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

Implements, Frame, Hitch and Suspension

Brake and
Steering Systems

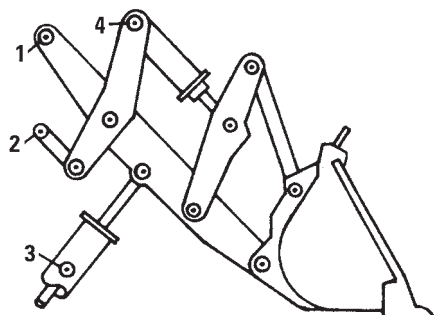
Hydraulic System Tools

Hydraulic Component
Disassembly and Assembly

Motor Grader Controls,
Cable Control and Winch

Loader Lift Arm and
Excavator Implement

Implements, Frame,
Hitch and Suspension



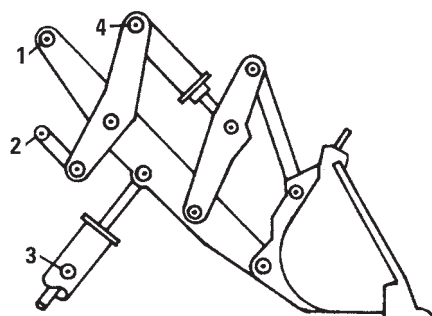
980 Wheel Loader (Bearing Location)

Part No.	Tools Required	1	2	3	4
1H-3107	Push-Puller ¹	1	1	1	1
6V-3170	Puller Group (50 ton) ²	1	1	1	1
9S-5431	Sleeve Assembly ³	1	1		
4C-9634	Stud (1¼ -12)	1	1	1	1
9S-5564	Sleeve Assembly ³			1	1
9U-6832	Fast Runner Nut	1	1	1	1
1P-1835	Adapter-Bearing Pulling			1	1
1P-1839	Adapter-Bearing Pulling	1			
1P-1841	Adapter-Bearing Pulling		1		

¹ Use crossbar from Push-Puller for installation only

² Also requires one of the following pumps: 3S-6224 (115 V), 8S-8033 (230 V)

³ Used for removal only



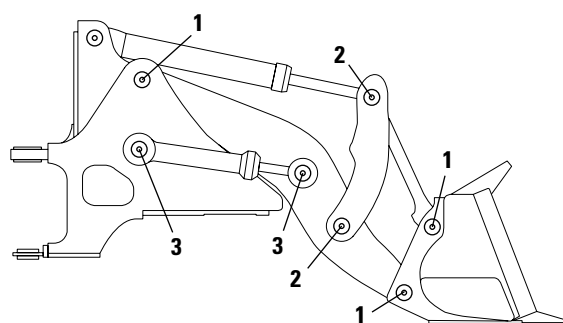
988 Wheel Loader (Bearing Location)

Part No.	Tools Required	1	2	3	4
1H-3107	Push-Puller ¹	1	1	1	1
6V-3170	Puller Group (50 ton) ²	1	1	1	1
9S-5431	Sleeve Assembly ³	1	1		
4C-9634	Stud (1¼ -12)	1	1	1	1
9S-5564	Sleeve Assembly ³			1	1
9U-6832	Fast Runner Nut	1	1	1	1
1P-1835	Adapter-Bearing Pulling			1	1
1P-1841	Adapter-Bearing Pulling	1	1		

¹ Use crossbar from Push-Puller for installation only

² Also requires one of the following pumps: 3S-6224 (115 V), 8S-8033 (230 V)

³ Used for removal only

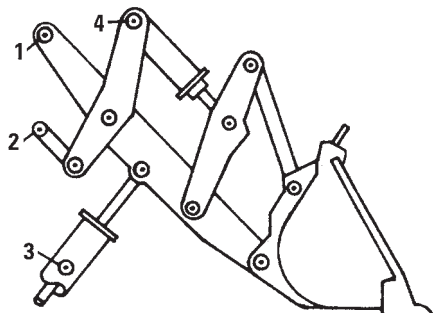


988G Wheel Loader (Bearing Location)

Part No.	Tools Required	1	2	3
9U-6751	Sleeve Assembly	1		
4C-8163	Sleeve Assembly		1	
134-8466	Sleeve Assembly			1
9U-5346	Fast Runner Nut	1	1	
9U-6809	Fast Runner Nut			1
316-1489	Cylinder	1	1	
9U-6811	Rod	1		
137-8460	Rod		1	
220-1776	Puller Stud			1
9U-6753	Retaining Plate			1
9R-3979	Rod			1
8T-4121	Washer			4
8T-4132	Nut			4

Also requires one of the following pumps: 3S-6224 (115 V), 8S-8033 (230 V)

*This article has changed
since the printing of the 2009
Dealer Service Tools Catalog.*

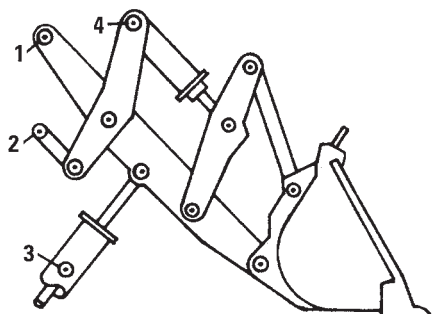


992 Wheel Loader (Bearing Location)					
Part No.	Tools Required	1	2	3	4
1H-3107	Push-Puller ¹	1	1	1	1
6V-3170	Puller Group (50 ton) ²	1	1	1	1
9S-5431	Sleeve Assembly ³	1	1	1	1
4C-9634	Stud (1¼ - 12)	1	1	1	1
9U-6832	Fast Runner Nut	1	1	1	1
1P-1841	Adapter-Bearing Pulling			1	1
1P-1844	Adapter-Bearing Pulling	1	1		

¹ Use crossbar from Push-Puller for installation only

² Also requires one of the following pumps: 3S-6224 (115 V), 8S-8033 (230 V)

³ Used for removal only



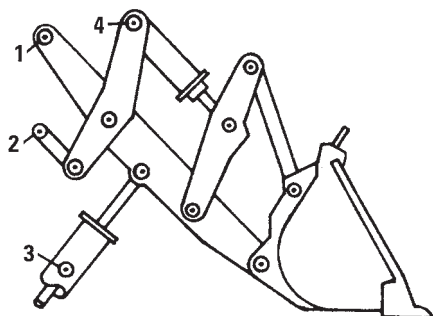
NOTE: FT0514 Handle can be made for use with 1P-1831, 1P-1832, 1P-1833 and 1P-1834 Adapters where manual driving of bearings is desired.

933 Track-Type Loader (Bearing Location)				
Part No.	Tools Required	1	3	4
8B-7548	Bearing Puller ¹ Assembly		1	1
6V-3160	Puller Group (30 ton) ²		1	1
1H-3107	Push-Puller ¹	1		
6V-3170	Puller Group (50 ton) ²	1		
4C-9634	Stud (1¼ - 12)	1		
—	Stud (1-14)		1	1
9S-5564	Sleeve Assembly ³	1		
9S-5565	Sleeve Assembly ³		1	1
1P-0543	Fast Runner Nut		1	1
9U-6832	Fast Runner Nut	1		
1P-1831	Adapter-Bearing Pulling			1
1P-1832	Adapter-Bearing Pulling		1	
1P-1835	Adapter-Bearing Pulling		1	

¹ Use crossbar from Push-Puller for installation only

² Also requires one of the following pumps: 3S-6224 (115 V), 8S-8033 (230 V)

³ Used for removal only



NOTE: FT0514 Handle can be made for use with 1P-1831, 1P-1832, 1P-1833 and 1P-1834 Adapters where manual driving of bearings is desired.

941 and 951 Track-Type Loaders (Bearing Location)					
Part No.	Tools Required	1	2	3	4
8B-7548	Bearing Puller ¹ Assembly			1	1
6V-3160	Puller Group (30 ton) ²			1	1
1H-3107	Push-Puller ¹	1	1		
6V-3170	Puller Group (50 ton) ²	1	1		
9S-5431	Sleeve Assembly ³		1		
4C-9634	Stud (1¼ - 12)	1	1		
—	Stud (1-14)			1	1
9S-5564	Sleeve Assembly ³	1			
9S-5565	Sleeve Assembly ³			1	1
1P-0543	Fast Runner Nut			1	1
9U-6832	Fast Runner Nut	1	1		
1P-1832	Adapter-Bearing Pulling			1	
1P-1833	Adapter-Bearing Pulling				1
1P-1837	Adapter-Bearing Pulling		1		
1P-1841	Adapter-Bearing Pulling		1		

¹ Use crossbar from Push-Puller for installation only

² Also requires one of the following pumps: 3S-6224 (115 V), 8S-8033 (230 V)

³ Used for removal only

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

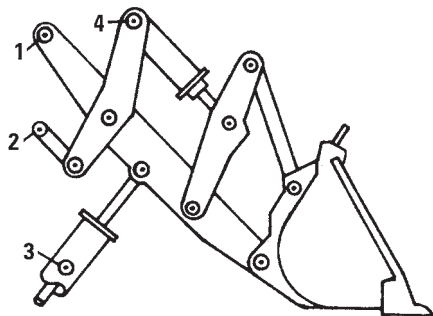
Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

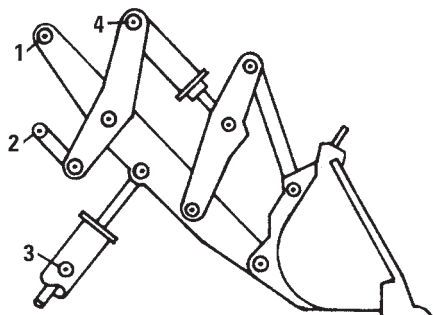
Implements, Frame, Hitch and Suspension

Brake and
Steering Systems

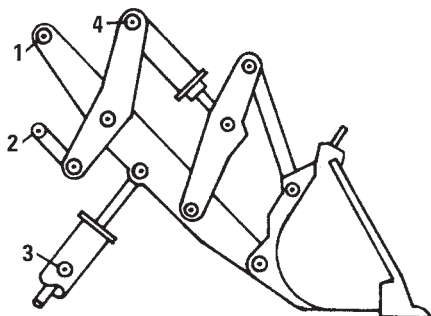
Hydraulic System Tools

Hydraulic Component
Disassembly and AssemblyMotor Grader Controls,
Cable Control and WinchLoader Lift Arm and
Excavator ImplementImplements, Frame,
Hitch and Suspension

NOTE: FT0514 Handle can be made for use with 1P-1831, 1P-1832, 1P-1833 and 1P-1834 Adapters where manual driving of bearings is desired.



NOTE: FT0514 Handle can be made for use with 1P-1831, 1P-1832, 1P-1833 and 1P-1834 Adapters where manual driving of bearings is desired.



NOTE: FT0514 Handle can be made for use with 1P-1831, 1P-1832, 1P-1833 and 1P-1834 Adapters where manual driving of bearings is desired.

***This article has changed
since the printing of the 2009
Dealer Service Tools Catalog.***

955H Track-Type Loaders (Bearing Location)

Part No.	Tools Required	1	3	4
8B-7548	Bearing Puller ¹ Assembly		1	1
6V-3160	Puller Group (30 ton) ²		1	1
1H-3107	Push-Puller ¹	1		
6V-3170	Puller Group (50 ton) ²	1		
4C-9634	Stud (1¼ -12)	1		
—	Stud (1-14)		1	1
9S-5564	Sleeve Assembly ³	1		
9S-5565	Sleeve Assembly ³		1	1
1P-0543	Fast Runner Nut		1	1
9U-6832	Fast Runner Nut	1		
1P-1832	Adapter-Bearing Pulling			1
1P-1833	Adapter-Bearing Pulling		1	
1P-1838	Adapter-Bearing Pulling	1		

¹ Use crossbar from Push-Puller for installation only

² Also requires one of the following pumps: 3S-6224 (115 V), 8S-8033 (230 V)

³ Used for removal only

955K Track-Type Loader (Bearing Location)

Part No.	Tools Required	1	2	3	4
8B-7548	Bearing Puller ¹ Assembly			1	1
6V-3160	Puller Group (30 ton) ²			1	1
1H-3107	Push-Puller ¹	1	1		
6V-3170	Puller Group (50 ton) ²	1	1		
9S-5431	Sleeve Assembly ³			1	
4C-9634	Stud (1¼ -12)	1	1		
—	Stud (1-14)			1	1
9S-5564	Sleeve Assembly ³	1			
9S-5565	Sleeve Assembly ³			1	1
1P-0543	Fast Runner Nut			1	1
9U-6832	Fast Runner Nut	1	1		
1P-1833	Adapter-Bearing Pulling			1	1
1P-1839	Adapter-Bearing Pulling	1			
1P-1843	Adapter-Bearing Pulling		1		

¹ Use crossbar from Push-Puller for installation only

² Also requires one of the following pumps: 3S-6224 (115 V), 8S-8033 (230 V)

³ Used for removal only

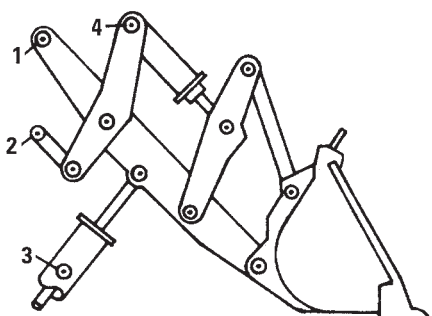
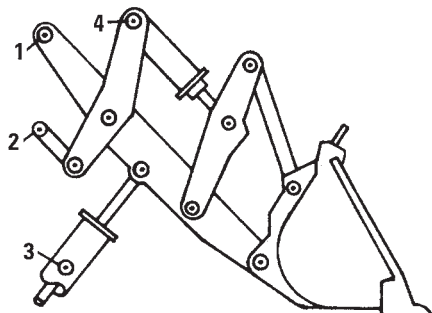
977H Track-Type Loaders (Bearing Location)

Part No.	Tools Required	1	3	4
8B-7548	Bearing Puller ¹ Assembly		1	1
6V-3160	Puller Group (30 ton) ²		1	1
1H-3107	Push-Puller ¹	1		
6V-3170	Puller Group (50 ton) ²	1		
9S-5431	Sleeve Assembly ³		1	
4C-9634	Stud (1¼ -12)	1		
—	Stud (1-14)		1	1
9S-5564	Sleeve Assembly ³	1		
1P-0543	Fast Runner Nut		1	1
9U-6832	Fast Runner Nut	1		
1P-1833	Adapter-Bearing Pulling			1
1P-1834	Adapter-Bearing Pulling		1	
1P-1839	Adapter-Bearing Pulling	1		

¹ Use crossbar from Push-Puller for installation only

² Also requires one of the following pumps: 3S-6224 (115 V), 8S-8033 (230 V)

³ Used for removal only



This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

977K Track-Type Loader (Bearing Location)				
Part No.	Tools Required	1	2	3 4
7F-6068	Sleeve Assembly ¹			1
1H-3107	Push-Puller ²	1	1	1 1
6V-3170	Puller Group (50 ton) ³	1	1	1 1
9S-5431	Sleeve Assembly ¹	1	1	1
4C-9634	Stud (1¼ -12)	1	1	1 1
9U-6832	Fast Runner Nut	1	1	1 1
1P-1835	Adapter-Bearing Pulling			1 1
1P-1841	Adapter-Bearing Pulling	1		
1P-1844	Adapter-Bearing Pulling		1	

¹Used for removal only

²Also requires one of the following pumps: 3S-6224 (115 V), 8S-8033 (230 V)

983 Track-Type Loader (Bearing Location)				
Part No.	Tools Required	1	2	3 4
—	Sleeve ¹			1
1H-3107	Push-Puller ²	1	1	1 1
6V-3170	Puller Group (50 ton) ³	1	1	1 1
9S-5431	Sleeve Assembly ¹	1	1	1
4C-9634	Stud (1¼ -12)	1	1	1 1
9U-6832	Fast Runner Nut	1	1	1 1
1P-1836	Adapter-Bearing Pulling			1
1P-1839	Adapter-Bearing Pulling			1
1P-1842	Adapter-Bearing Pulling	1		
1P-1844	Adapter-Bearing Pulling		1	

¹Used for removal only

²Use crossbar from Push-Puller for installation only

³Also requires one of the following pumps: 3S-6224 (115 V), 8S-8033 (230 V)

Fabricated Tools for Repair of Boom Bores (Upper Frame Groups) on 235 and 245 Excavators and Front Shovels

SMCS Code: 0672

Model: 235 and 245 Excavators and Front Shovels

Warranty: None

- Four fabricated tools used with 1P-4000 Line Boring Tool Group to recondition boom bores in upper frame group
- Used to locate and hold bar in position during its use:
 - FT1544 Fixture (2 required)
 - FT1545 Locating Bar (2 required)
 - FT1546 Vee Block
 - FT1547 Indicator Bracket

Reference

SMHS7822, Special Instruction, complete repair procedure and instructions for use of the tools

Tools for Servicing 990 Loader Linkage Pins and Collets

SMCS Code: 6107, 6108, 6119, 7054-010, 017

Model: 990 Wheel Loader

Essential Tool

Warranty: Six Months

- Used to remove and install loader arm linkage pins
- Used with 3S-6224 Hydraulic Pump (115 VAC), 8S-8033 Hydraulic Pump (230 VAC), or 9U-6600 Hydraulic Hand Pump
- A 6D-7726 Hose Assembly is also required

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Optional Receiving Sleeves

- An FT2503 Sleeve Assembly and FT2384 Receiving/Handling Sleeve are optional linkage pin tools (refer to illustrations for manufacturing specifications)
- These optional receiving sleeve assemblies are used with the same tools as other sleeves in this group
- Sleeves work especially well for handling pins weighing as much as 125 kg (335 lb) and 60 cm (2 ft) long, located high on machine
- Both receiving sleeve assemblies are suspended with straps

Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

Implements, Frame, Hitch and Suspension

Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and AssemblyMotor Grader Controls,
Cable Control and WinchLoader Lift Arm and
Excavator ImplementImplements, Frame,
Hitch and Suspension

Linkage Pin Removal and Installation

Part No.	Description	Size	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
316-1489	Cylinder Group	62 ton							1	1
4C-8149	Receiving Sleeve		1	1	1	1	1	1		
FT2503	Receiving Sleeve		opt ¹	opt ¹	opt ¹	opt ¹	opt ¹	opt ¹		
4C-9491	Receiving Sleeve								1	1
FT2384	Receiving Sleeve								opt ¹ (b)	opt ¹ (b)
4C-8150	Puller Stud	M64 x 1829 mm (72 in) long	1	1	1	1	1	1		
4C-8151	Forcing Bolt	M24 102.5 mm (4.04 in) long							3(a)	3(a)
5P-8712	Bushing	62 ton cylinder							2(b)	2(b)
4C-9486	Adapter	1 ¼-12 x M30							1(b)	1(b)
4C-9492	Plate								1(b)	1(b)
4C-9634	Puller Stud	1 ¼-12 x 735 mm (29 in) long							1(b)	1(b)
3E-8009	Bolt	M30 x 500 mm (19.7 in) long							1(b)	1(b)
9U-6832	Speed Nut	1 ¼-12							1(b)	1(b)
9U-6800	Speed Nut	M64	1	1	1	1	2	1		
4C-8153	Plate						1			
4C-8152	Retaining Plate		1	1	1	1	1	1		
9T-2240	Rod		4	4	4	4	4	4		
8T-4121	Washer		4	4	4	4	4	4		
8T-4133	Nut		4	4	4	4	4	4		

¹ Optional**NOTE a:** Use to remove collet**NOTE b:** Use to remove pin

Linkage Pin Installation (Collet)

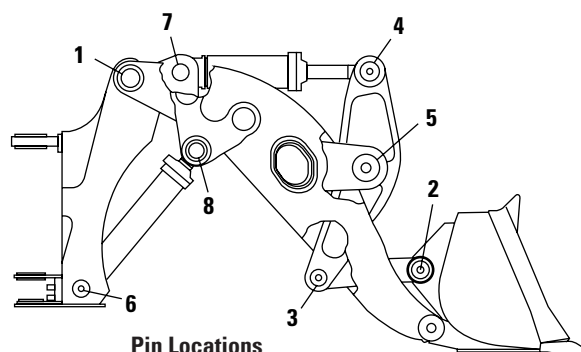
Part No.	Description	Size	Pin 7	Pin 8
316-1489	Cylinder Group	62 ton	1	1
5P-8712	Bushing	62 ton cylinder	1	1
5P-8714	Puller Stud	1 ¼-12 x 1 ¼-7, 356 mm (14.0 in) long	1	1
1P-0544	Fast Runner Nut	1 ¼-7	1	1
4C-9486	Adapter	1 ¼-12 x M30	1	1
3E-8009	Bolt	M30 x 500 mm (19.7 in) long	1	1
3S-7023	Washer	—	1	1
4C-9485	Drive Cap	M30	1	1

Pins 1, 4, and 6 160 mm (6.3 in) diameter (flag style)

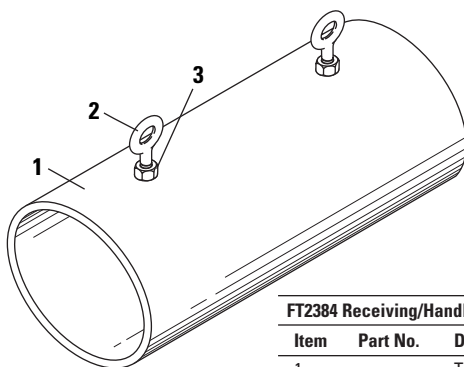
Pins 2 and 3 150 mm (5.9 in) diameter (flag style)

Pin 5 220 mm (8.7 in) diameter (flag style)

Pins 7 and 8 160 mm (6.3 in) diameter (cartridge style)

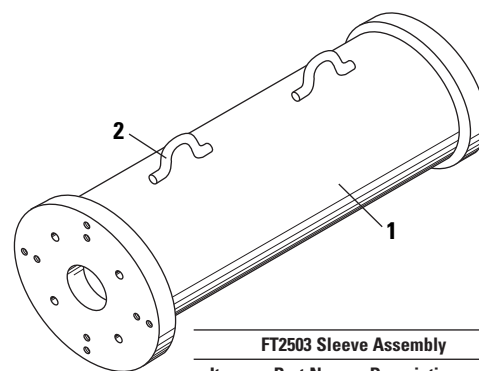


Pin Locations



FT2384 Receiving/Handling Sleeve (Optional)

Item	Part No.	Description
1		Tube, SAE 1026 steel
2	1P-7407	Eyebolt, ½-13
3	1F-7958	Nut, ½-13



FT2503 Sleeve Assembly

Item	Part No.	Description
1	9U-6752	Sleeve Assembly
2		Lift Eye

***This article has changed
since the printing of the 2009
Dealer Service Tools Catalog.***

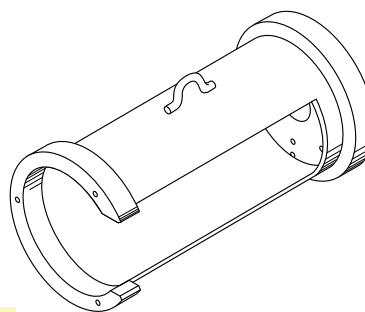
237-9180 Receiver Sleeve Assembly

SMCS Code: 6107, 6108, 6119, 7054-010, 017
Model: 990G Series II Wheel Loader

Essential Tool

Warranty: Six Months

- Used to remove and install bucket linkage pin
- Used with **discontinued** 316-1490 Cylinder Group (150 ton); 3S-6224 Hydraulic Pump (115 VAC), 8S-8033 Hydraulic Pump (230 VAC), or 9U-6600 Hydraulic Hand Pump; and other tooling found in Tools for Servicing 990 Loader Linkage Pins and Collets
- A 6D-7726 Hose Assembly is also required



Reference

REN6266, Service Manual

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Tools for Servicing 992 Loader Linkage Pins and Collets

SMCS Code: 6107-010

Model: 992 Loader

Warranty: Six Months

- Special tools used with other hydraulic service tools to remove and install loader linkage pins and collets on 992C Wheel Loaders
- Discontinued** 5P-8716 Pin Handler especially recommended for handling pins, some of which weigh as much as 77 kg (170 pounds) and are located high on machine
- Refer to tool charts on following pages for tools required for each location
- In most cases, 992C loader linkage pins and collets can be removed with 5P-8715 Forcing Bolts; if additional force required, these tools used with **discontinued** 6V-0014 or 316-1491 Cylinder, provide 100 ton capability for removal; refer to Pin Removal tool chart

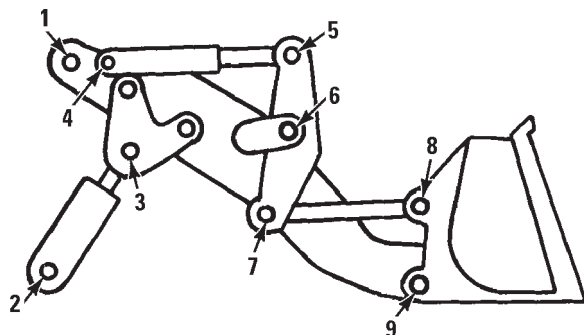


Item	Part No.	Description
1	6V-2072	Sleeve Assembly
2	6V-2074	Stud
3	6V-2073	Bushing
4	8T-5270	Adapter



Item	Part No.	Description
1	—	Pin Handler
2	5P-8714	Stud
3	5P-8712	Bushing
4	5P-8623	Coupler
5	5P-8713	Plate
6	5P-8715	Forcing Bolt

Servicing 992C Loader Linkage Pins and Collets



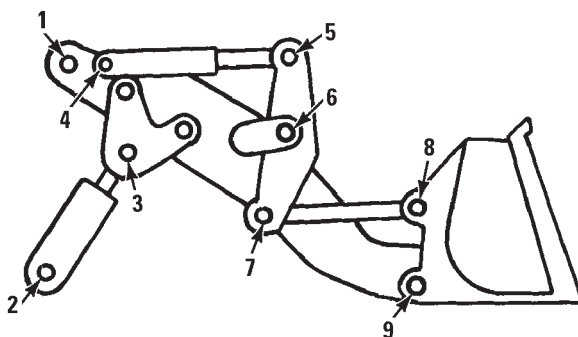
This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Collet Removal¹ (Pin Location)

Part No.	Tools Required	1	7	8	9
5P-8715	Forcing Bolt	3	3	4	4
316-1491	Cylinder ²	1	1	1	1
6V-2072	Sleeve Assembly	1	1	1	1
6V-2073	Bushing	1	1	1	1
6V-2074	Stud	1	1	1	1
8H-3390	Nut	1	1	1	1

¹ Collets normally can be removed with forcing bolts. If, for some reason, the collets at locations 3, 8 and 9 cannot be removed with forcing bolts, use the other tools with hydraulic force.

² One of the hydraulic pumps which follow is necessary: 3S-6224 (115 V) or 8S-8033 (230 V).

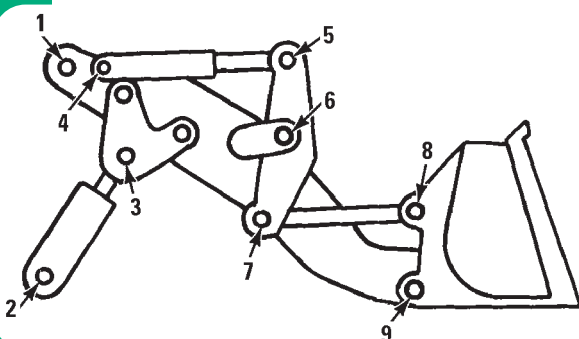


Pin Removal¹ (Pin Location)

Part No.	Tools Required	3	8	9
316-1491	Cylinder ²	1	1	1
8T-5270	Adapter	1	1	1
6V-2072	Sleeve Assembly	1	1	1
6V-2073	Bushing	1	1	1
6V-2074	Stud	1	1	1
8H-3390	Nut	1	1	1

¹ The pin at location 9 can be manually removed if the collets at both ends are first removed.

² One of the hydraulic pumps which follow is necessary: 3S-6224 (115 V) or 8S-8033 (230 V).



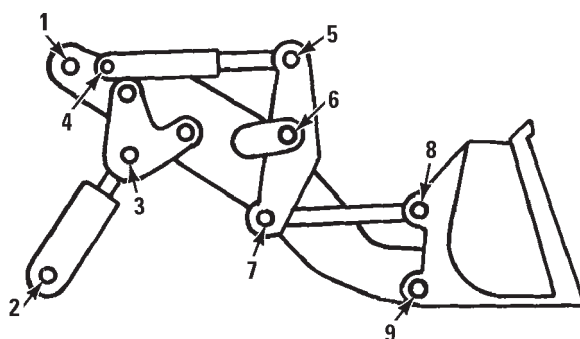
Pin and Collet Installation (Pin Location)

Part No.	Tools Required	1	2	3	4	5	5 ¹	6	7	9
7H-7539	Nut				1 ²					1
4K-0684	Washer	1	1		1 ²	1		1	1	1
9U-6832	Nut Assembly	1	1	1	1	1	1	1	1	1
316-1489	Cylinder ³	1	1	1	1	1	1	1	1	1
5P-8623	Coupler	1	1		1	1	1	1	1	1
5P-8712	Bushing	1	1	1	1	1	1	1	1	1
5P-8713	Plate			1						
5P-8714	Stud	1	1		1		1	1	1	1
—	Pin Handler	1	1	1	1	1	1	1	1	1
4C-9634	Stud	1	1	1		1		1		1
4V-3241	Rod				1 ²					
5P-4184	Stud						1		1	

¹ Serial numbers 42X804-Up, on right side

² Part is a component of the linkage

³ One of the hydraulic pumps which follow is necessary: 3S-6224 (115 V) or 8S-8033 (230 V).



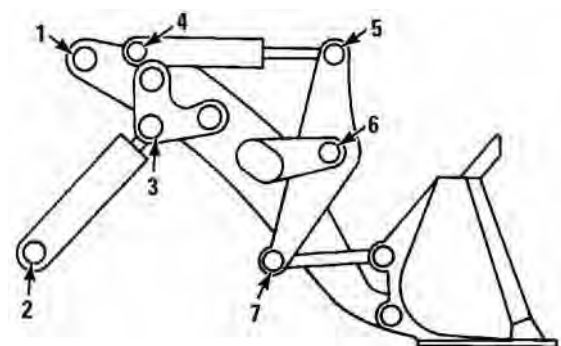
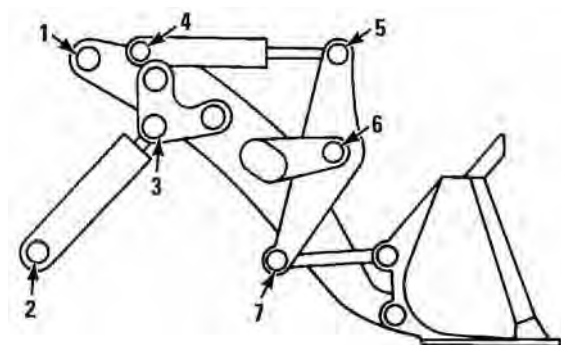
Installation

Part No.	Tools Required	Pin Location 8	Collet Location 8
4K-0684	Flat Washer	1	1
3K-9770	Nut	1	
9U-6832	Nut Assembly	1	1
—	Cylinder ¹	1	1
5P-8623	Coupler	1	1
5P-8712	Bushing	1	1
5P-8713	Plate	1	
5P-8714	Stud	1	1
3S-6162	Washer	2	
4C-9634	Stud	1	1

¹ One of the hydraulic pumps which follow is necessary: 3S-6224 (115 V) or 8S-8033 (230 V).

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Servicing 992C Loader Lift Arm Bearings



This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

		Installation (Bearing Location)						
Part No.	Tools Required	1	2	3	4	5	6	7
5D-0764	Washer				1	1		1
5H-6197	Pin	1	1	2			2	
—	Sleeve Assembly				1	1		1
3J-1770	Lock Pin	3	3	3			3	
7M-9772	Pin	3	3	3			3	
7M-9773	Adapter	2	2	2			2	
7M-9774	Adapter Coupling	1	1	1			1	
9U-6832	Nut				1	1		1
1P-1844	Adapter				1	1		1
5P-0972	Adapter	1	1	1			1	
6V-3170	Hydraulic Puller				1 ¹	1 ¹		1 ¹
5P-4181	Adapter	1	1	1			1	
5P-7370	Sleeve Assembly	1	1	1			1	
—	Adapter	1	1	2			2	
5P-8713	Plate				1	1		1
8S-6377	Lock	1	1	2			2	
9S-8901	Cylinder Group	1 ¹	1 ¹	1 ¹			1 ¹	
9S-5557	Adapter	1	1	1			1	
4C-9634	Stud				1	1		1
6V-0027	Adapter	1	1	1			1	

¹ Also requires one of these pumps: 3S-6224 (115 V) or 8S-8033 (230 V).

		Removal (Bearing Location)						
Part No.	Tools Required	1	2	3	4	5	6	7
5D-0764	Washer				1	1		1
5H-6197	Pin	2	2	2			2	
—	Sleeve Assembly				1	1		1
3J-1770	Lock Pin	2	2	2			2	
7M-9772	Pin	2	2	2			2	
7M-9773	Adapter	1	1	1			1	
7M-9774	Adapter Coupling	1	1	1			1	
9U-6832	Nut				1	1		1
1P-1844	Adapter				1	1		1
5P-0972	Adapter	1	1	1			1	
6V-3170	Hydraulic Puller				1 ¹	1 ¹		1 ¹
5P-7370	Sleeve Assembly	1	1	1			1	
—	Adapter	2	2	2			2	
5P-8713	Plate				1	1		1
8S-6377	Lock	2	2	2			2	
9S-8901	Cylinder Group	1 ¹	1 ¹	1 ¹			1 ¹	
9S-5557	Adapter	1	1	1			1	
4C-9634	Stud				1	1		1
6V-0027	Adapter	1	1	1			1	

¹ Also requires one of these pumps: 3S-6224 (115 V) or 8S-8033 (230 V).

Linkage Pin and Sleeve Bearing Removal and Installation Tools

SMCS Code: 6107, 6108, 6119, 5051, and 7054-010, 017

Model: 992G Wheel Loader

Warranty: Six Months (FT numbers: None)

- Used to remove and install loader arm linkage pins and sleeve bearings
- Used with 3S-6224 Hydraulic Pump (115 VAC), 8S-8033 Hydraulic Pump (230 VAC), or 9U-6600 Hydraulic Hand Pump — also requires a 6D-7726 Hose Assembly
- Refer to charts for tools required for each pin location [pins A through Y are 180 mm (7.1 in) diameter and pin G is 140 mm (5.5 in) diameter]

Receiving Sleeve

- Special receiving sleeve assemblies are used with other hydraulic service tools to remove and install linkage pins
- Sleeves work especially well for handling pins weighing as much as 284 kg (626 lb) and 146 cm (4.8 ft) long which are located high on the machine
- Retaining bolts are built into sleeves allowing linkage pin to be locked into sleeve when working overhead
- Receiving sleeve assembly is easily suspended with eyebolts (supplied with tool)

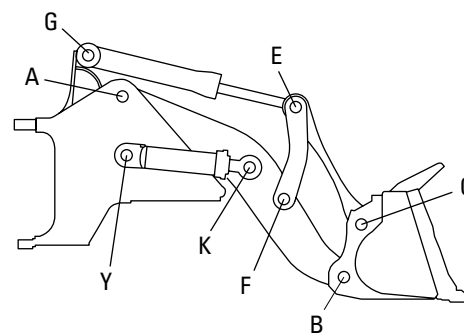
This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Adapter Plates and Rods

- A complete range of sleeve bearing puller plates and installer plates are available for servicing each pin location
- Threaded rod and speed nut provides time saving means of pulling large pins
- FT2544 and FT2545 are two additional linkage pin and bearing tools that are optional

Reference

SENR5893, Service Manual, 992G Machine Systems



Linkage Pin and Bearing Sleeve Locations

Linkage Pin Installation and Removal Tooling									
Part No.	Description	A	B	C	E	F	K	Y	G
316-1491	Cylinder Group (100T)	1	1	1	—	—	1	1	—
1U-5197	Cylinder Group (80T)	—	—	—	—	—	—	—	1
316-1489	Cylinder Group (62T)	—	—	—	1	1	—	—	—
9U-6753	Plate, Retaining	1	1	1	1	1	1	1	1
9T-2240	Rod	4	4	4	4	4	4	4	4
8T-4133	Nut	4	4	4	4	4	4	4	4
8T-4121	Washer	4	4	4	4	4	4	4	4
155-8191	Receiving Sleeve Assembly	1	1	1	1	1	1	1	—
137-8792	Receiving Sleeve Assembly	—	—	—	—	—	—	—	1
136-5747	Puller Stud (M48/2415 long)	1	1	1	—	—	1	1	—
137-8460	Puller Stud (M30/1980 long)	—	—	—	1	1	—	—	—
9U-7998	Puller Stud (M36/945 long)	—	—	—	—	—	—	—	1
9U-6810	Fast Runner Nut (M48)	1	1	1	—	—	1	1	—
9U-6809	Fast Runner Nut (M36)	—	—	—	—	—	—	—	1
9U-5346	Fast Runner Nut (M30)	—	—	—	1	1	—	—	—
7X-0542	Washer	1	1	1	—	—	1	1	—
8T-5463	Washer	—	—	—	—	—	—	—	1
5P-8712	Bushing	—	—	—	1	1	—	—	—
138-2353	Adapter Plate	—	—	—	—	—	1	1	—
8T-0271	Hex Socket Head Screw (M10)	—	—	—	—	—	3	3	—
155-8192	Adapter Plate —	—	—	—	—	1	1	—	—

Optional Tooling for Pin Installation									
Part No.	Description	A	B	C	E	F	K	Y	G
FT2545	Pin Guide Assembly	1	1	1	1	1	1	1	N/A
7X-2583	Bolt (M30)	1	1	1	1	1	1	1	N/A
9X-8258	Washer	1	1	1	1	1	1	1	N/A
9U-5344	Rod (M30/800 long)	1	1	1	1	1	1	1	1
8T-1583	Nut (M30)	1	1	1	1	1	1	1	1

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Vehicle System Tools

Sleeve Bearing Installation and Removal Tooling									
Part No.	Description	A	B	C	E	F	K	Y	G
4C-8152	Retaining Plate	1	1	1	1	1	1	1	1
9T-2240	Rod	4	4	4	4	4	4	4	4
8T-4133	Nut	4	4	4	4	4	4	4	4
8T-4121	Washer	4	4	4	4	4	4	4	4
137-8792	Receiving Sleeve Assembly	1	1	1	1	1	1	1	1
138-1135	Bearing Puller Plate	1	1	1	1	1	1	1	—
9U-6800	Speed Nut (M64)	2	2	2	2	2	2	2	2
139-9470	Bearing Puller Plate	—	—	—	—	—	—	—	1
138-0992	Adapter Plate	1	1	1	1	1	1	1	—
138-2352	Adapter Plate	—	—	—	—	—	—	—	1
9U-6702	Puller Stud (M64/2451 long)	1	1	1	1	1	1	1	—
138-0603	Bearing Installer Plate	1	1	1	1	1	1	1	—
193-2255	Bearing Installer Plate	—	—	—	1	1	—	—	—
138-0992	Adapter Plate	1	1	1	1	1	1	1	—
138-2351	Bearing Installer Plate	—	—	—	—	—	—	—	1
138-2352	Adapter Plate	—	—	—	—	—	—	—	1
137-8792	Receiving Sleeve Assembly	—	—	—	1	1	1	1	—

NOTE: 137-8792 is required for pin bearings (E and F) in boom links, and (K and Y) in lift cylinders

Optional Tooling for Bearing Removal and Installation

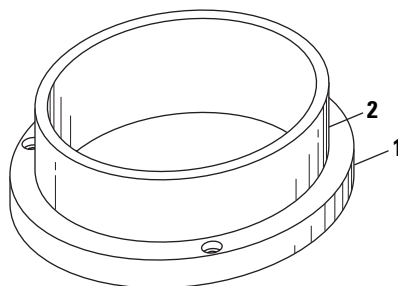
These tools can be used to service boom bearings without removing boom from frame

Part No.	Description	Qty.
FT2544	Receiving Sleeve Adapter	1
8T-0271	Hex Socket Head Screw	3

Fabricated Tools

FT2544 Receiver Sleeve Adapter (992G)

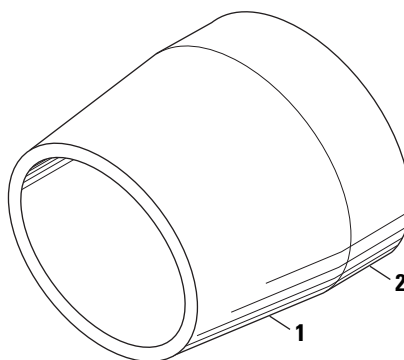
Item	Description	Material
1	Plate	SAE4140 Steel
2	Tube	SAE1026 Steel



FT2545 Receiver Sleeve Adapter (992G)

- Rockwell hardness of C45 to 50 required only for Item 1 after final machining
- Optional heat treat to increase durability of guide assembly

Item	Description	Material
1	Tube	SAE1026 Steel
2	Plate	SAE1018 Steel



This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

Implements, Frame, Hitch and Suspension

Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and AssemblyMotor Grader Controls,
Cable Control and WinchLoader Lift Arm and
Excavator ImplementImplements, Frame,
Hitch and Suspension

263-7808 Pin Joint Group

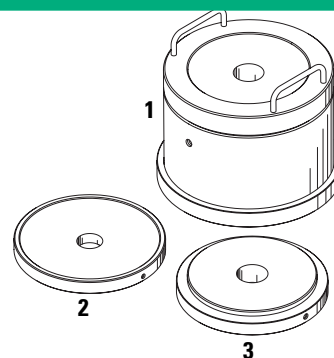
Model: 992 Wheel Loader

Essential Tool

Warranty: Six Months

- Used to remove and install Sleeve Bearing Cartridge (SBC) pin joint assemblies
- Heat-treated for strength and durability
- Group includes all items in Figure

Service/Repair Parts		
Item	Part No.	Description
1	246-0498	Pin Puller Assembly
2	246-0499	Puller Plate
3	246-0500	Puller Plate



Reference

REHS2560, Special Instruction

217-4428 Bearing Puller Plate

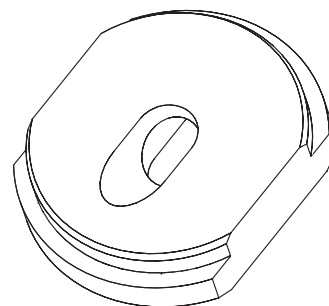
SMCS Code: 6511, 7551-011

Model: 988G Wheel Loader

Warranty: Six Months

- Used to remove 2 sleeve bearings from F pin location
- Bearing puller plate has center swivel point for easy installation
- Hydraulic removal of bearings is preferred over other methods, such as burning, cutting, or drilling
- Heat-treated for added durability

Overall outside diameter	152.0 mm (5.98 in)
Small outside diameter	136.0 mm (5.35 in)
Hole diameter	31.0 mm (1.22 in)



Reference

REN2173, Service Manual, 988G Machine Systems

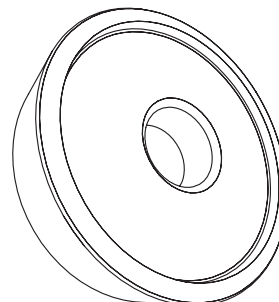
218-2143 Bearing Puller Plate

SMCS Code: 7054, 7117, 7551-011

Model: 988G Wheel Loader and 836G Landfill Compactor

Warranty: Six Months

- Used to remove 2 bearing cups and cones from lower hitch articulation joint
- Used with **discontinued** 6V-0014 Cylinder and 9U-6810 Speed Nut
- Hydraulic removal of bearings is preferred over other methods, such as burning, cutting, or drilling
- M48 threads provide a maximum of 890 kN (100 tons) of hydraulic pulling force



Reference

REN2173, Service Manual, 988G Machine Systems

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

FT2824 Sleeve Assembly

SMCS Code: 5102, 7551-012

Model: 988G Wheel Loader

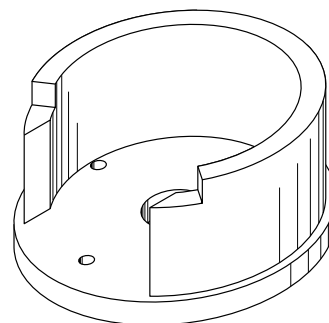
Warranty: None

- Used to install 152-3750 Sleeve Bearing into rod end of lift cylinder
- Machined notch is required for sleeve assembly to seat flush against cylinder face

Reference

REN2173, Service Manual, 988G Machine Systems

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.



212-8164 Bearing Installation Plate

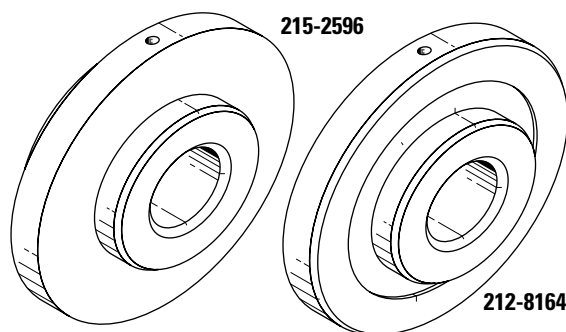
215-2596 Adapter Plate

SMCS Code: 5102-012
Model: 988G Wheel Loader
Warranty: Six Months

- Used to install 152-3749 Sleeve Bearing into pin bores for lift cylinder (locations K and Y)
- 212-8164 designed to quickly and accurately set depth of sleeve bearing
- Heat-treated for added durability

Reference

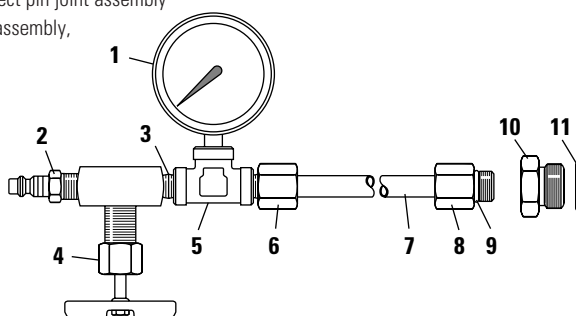
REN2173, Service Manual, 988G Machine Systems



FT2675 Pressure Gauge

SMCS Code: 5051-030, 6107, 6108, 6119, 7054
Model: 988G Wheel Loader or other machines with MFL pins

- Used to test MFL joints for correct pin joint assembly
- Provides quick testing after disassembly, assembly, or repair
- Hose length: 457 mm (18.0 in)



Item	Part No.	Description
1	8T-0854	Gauge
2	4C-7158	Fitting
3	008-0728	Nipple
4	1S-8937	Valve
5	006-0210	Pipe Tee
6	124-1916	Coupling
7	122-6869	Hose
8	124-1930	Coupling
9	3K-0360	Seal

Additional parts required for the K-pin joint for the 9886

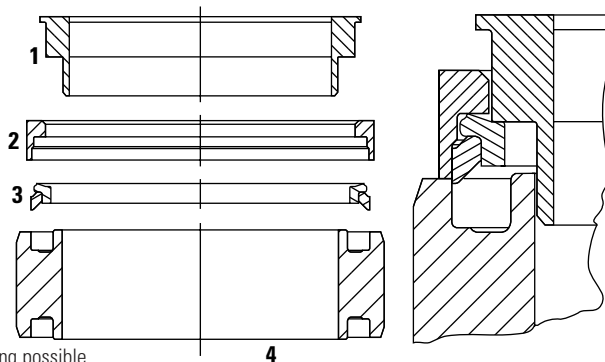
10	5P-5777	Adapter
11	7M-8485	O-ring Seal

155-5516 Installer Ring

155-5517 Seal Plunger

SMCS Code: 6107-012
Model: 992G Wheel Loader
Warranty: Six Months

- Used to install 143-9740 Seal Assembly into discontinued 144-7077 Collar — provides quick and accurate installation
- Consistently provides precise installation depth of maintenance free linkage (MFL) seals
- Ring prevents seal lip damage
- Plunger applies installation force evenly eliminating possible seal damage
- Helps eliminate recall and rework due to damaged or improperly installed seals



Item	Part No.	Description
1	155-5516	Installer Ring
2	155-5517	Seal Plunger
3	143-9740	Seal Assembly
4	—	Collar

Reference

REHS0146, Special Instruction, Installation of Maintenance Free Linkage Seals

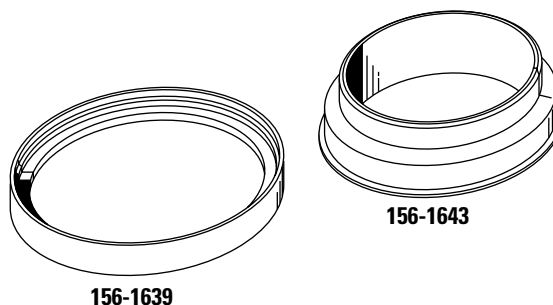
This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

156-1639 Installer Ring

156-1643 Seal Plunger

SMCS Code: 6117-012
Model: 992G Wheel Loader
Essential Tool
Warranty: Six Months

- Used to properly install maintenance free linkage (MFL) 1R-1056 Seal Assembly into collar
- Eliminates inconsistent installation of seal (saves time and eliminates possible seal damage during installation)



Reference

REHS0146, Special Instruction, Installation of Maintenance Free Linkage Seal

164-5848 Seal Driver

SMCS Code: 6108-012

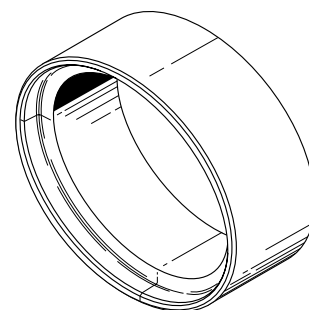
Model: 992G Wheel Loader

Essential Tool

Warranty: Six Months

- Used to properly install 160-5875 Lip Seal in 161-5808 Bearing
- Quickly and easily installs seal while reducing possibility of damage (eliminates hammer and punch method)
- Made from durable steel tubing

Outside diameter	203.2 mm (8.00 in)
Inside seal diameter	94.5 mm (7.66 in)



6V-2078 Stud

SMCS Code: 5102-010, 6101-010

Model: 988B

Warranty: Six Months

- Used with 6V-3170 Hydraulic Cylinder, 5B-0637 Nut, and suitable hydraulic pump to install collets in lift arm and bucket linkage on 988B Loaders, 50W1-50W-2264
- On later 988's, 50W-2265-50W-4321, the tools can be used at bucket to lift arm pin only

6V-2078 Stud

Capacity 490 kN (55 tons)



This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Reference

Service Manual (tools needed at other locations and later serial numbers)

1U-7646 Coupler

SMCS Code: 6317-015

Model: D9L

Warranty: Six Months

- Used to connect 2 or more studs together to get needed length for D9L Impact Ripper Pin disassembly; requires 3 8.1 mm (1½ in) diameter high-strength puller stud, greater in length than longest stud formerly available, 6V-2074 Stud
- Made from heat-treated alloy steel, 60.45 mm (2.38 in) hexagon stock, similar to existing coupling adapters
- Contains internal stops to control length of thread engagement with studs
- Capacity: 100 tons

Forcing Bolts for Linkage Pin Collets

SMCS Code: 6107-010

Model: 980C and 988B Wheel Loaders

Warranty: Six Months

- Used to remove linkage pin collets

Item	Part No.	Description
1	5P-5264	Forcing Bolt, 1.50 in-12 thd
2	5P-5265	Forcing Bolt, 0.875 in-14 thd (3 required)
3	6V-0187	Forcing Bolt, 1.50 in-12 thd



Alignment Fixtures for Portable Boring Bar Unit

SMCS Code: 0767, 6507, 6511, 6512-020

Model: 5110B, 5130, 5130B, 5230 Mining Shovels and General Usage When Machine

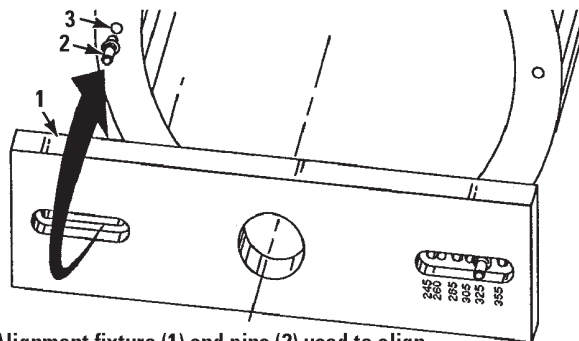
Is Equipped With Bore Alignment Locator Holes

Warranty: Six Months

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

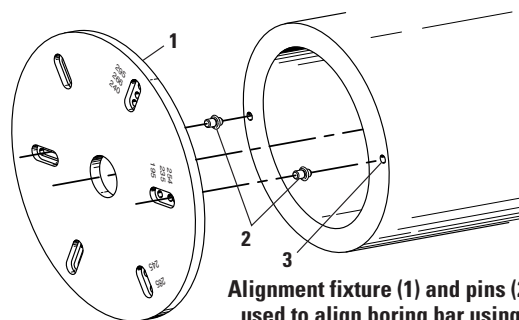
- Used to find true center of a bore even when it is badly worn (requires 2 plates and 4 pins)
- Used with 9U-5730 Portable Boring Bar Unit or 9U-5889 Portable Boring Bar Unit
- Alignment fixtures are designed for bore sizes over 190 mm (7.5 in) and when machine is manufactured with bore alignment locator holes
- Simple to use — attach alignment fixture by inserting 1 pin into hole (hole spacing dimensions stamped for easy location) and the other pin into machine locator hole
- Quickly and easily aligns 51 mm (2.0 in) boring bar to exact centerline of original bore using locating holes and pins [alignment is within 0.4 mm (0.016 in)]
- Each alignment fixture accommodates several center-to-center dimensions for locator holes (choose hole in fixture which matches locator hole spacing on machine)
- Alignment fixtures are designed only to locate the boring bar (fixture must be removed once boring bar tooling is in place)
- Locator holes will be designed into many future machine designs
- Hole diameter for boring bar: 51 mm (2.0 in)

Vehicle System Tools



Alignment fixture (1) and pins (2) used to align boring bar using bore alignment locator holes (3)

Part No.	Description	Width	Thickness	Length
4C-9696	Alignment Fixture	101 mm (4.0 in)	12.7 mm (0.50 in)	406 mm (16.0 in)
4C-9698	Alignment Fixture	101 mm (4.0 in)	12.7 mm (0.50 in)	508 mm (20.0 in)
197-1377	Alignment Fixture		12.7 mm (0.50 in)	



Alignment fixture (1) and pins (2) used to align boring bar using bore alignment locator holes (3)

Item	Part No.	Description	Outside Diameter
1	197-1377	Alignment Fixture	349.0 mm (13.74 in)
2		Pin	
3		Locator Hole	

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

Implements, Frame, Hitch and Suspension

Fabricated Tools for Reboring Bushing Bores on Two-Piece Booms

SMCS Code: 0672

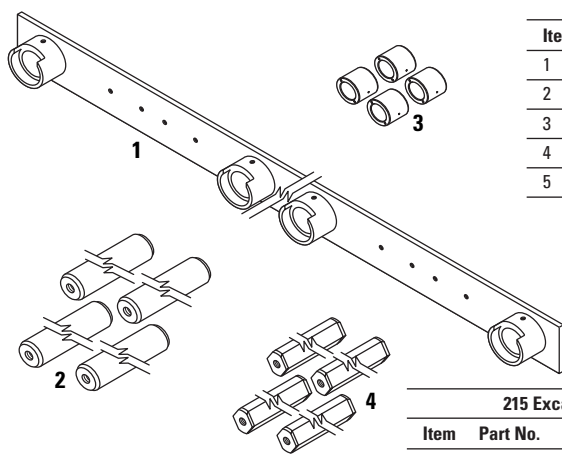
Model: 215, 225 and 235 Excavators

Warranty: Six Months

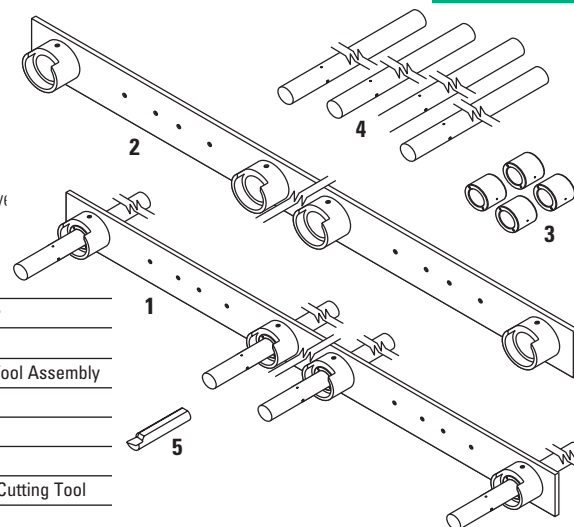
- Recommended tools to rebores damaged bushing bores at joint of stub and fore boom
- Designed to work satisfactorily if there are at least 2 sets of good bores remaining in fore boom and at least 1 good set of bores in stub boom
- Repair work can be done on machine without removal of stub boom, but fore boom must be removed

Reference

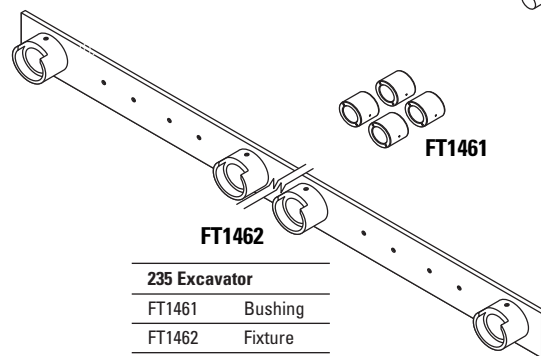
SMHS7625, Special Instruction



225 Excavator			
Item	Part No.	Description	
1	FT1432	Fabricated Tool Assembly	
2	FT1433	Fixture	
3	FT1434	Bushing	
4	FT1435	Boring Bar	
5	FT1436	Carbide Tip Cutting Tool	



215 Excavator			
Item	Part No.	Description	
1	FT1456	Fixture	
2	FT1457	Pin	
3	FT1458	Bushing	
4	FT1459	Pin	



235 Excavator			
Item	Part No.	Description	
1	FT1461	Bushing	
2	FT1462	Fixture	

6V-4035 Sleeve Assembly

SMCS Code: 5100-010, 6100-010, 7054-010, 7200-010

Model: 980C and 943 Loaders

Warranty: Six Months

- Used to remove bucket linkage or cylinder mounting pins which have retainer plates up to 114 (4.5 in) width; wider retainer plates used at some locations on 980C and 943 Loaders
- Should be used with center hole discontinued 6V-0113 or 316-1489, 6V-3170, 6V-3165, 6V-3160, or 316-1493 Cylinders

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.



Capacity	553 kN (62 tons)
Length	284 (11.18 in)

FT3035 Puller Adapter

SMCS Code: 6118-010

Model: 302.5 Mini Hydraulic Excavator

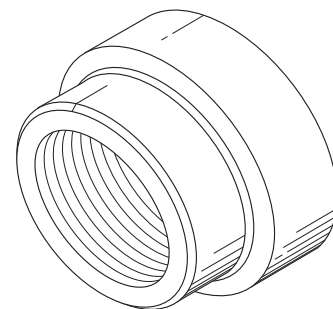
Warranty: None

- Used to remove and install boom swing bearings from frame
- Made from 1P-1832 Bearing Puller Adapter by reducing both outside diameters

Reference

REN9147, Disassembly and Assembly for 302.5C Mini Excavator

Tools used with FT3035	
Part No.	Description
4C-9633	Puller Stud
6V-3160	Puller
9U-6833	Fast Runner Nut Assembly
5P-4197	Spacer
3S-6224	Electric Hydraulic Pump
6D-7726	Hydraulic Hose



FT3038 Puller Adapter FT3039 Receiving Sleeve

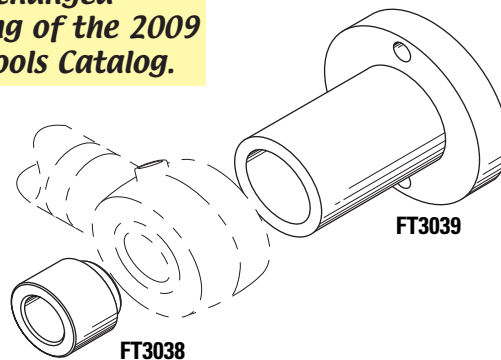
SMCS Code: 6118-010

Model: 301.8C Mini Hydraulic Excavator

Warranty: None

- Used to remove and install sleeve bearings in bucket cylinder rod eye, blade cylinder rod eye, linkage assembly, and stick assembly
- Used with **discontinued** 6V-7047 or 316-1496 Single Acting Hydraulic Cylinder, 4C-9633 Puller Stud, and 9U-6833 Fast Runner Nut
- FT3038 pulls sleeve bearing out of component, using a 1-14 threaded puller stud, into FT3039
- Sleeve assembly can be bolted to hydraulic cylinder with two 3/8-16 bolts (makes assembly of puller tooling easier)

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.



Reference

REN9157, 301.8C Mini Hydraulic Excavator, Disassembly and Assembly Service Manual

Bearing Puller Adapters

SMCS Code: 6118-010

Model: 613B, 621B, 623B, 627B, 631D, 633D and 637D Scrapers, 245 Excavator, 992C Loader, 5000 Series Excavators, and DIIT

Warranty: Six Months

- Used for removal and installation of larger sleeve type bearings in loader lift arms, scraper hitches, excavator sticks and booms, etc.

Reference

GMG00806, Special Instruction

Part No.	Small Outside Diameter	Large Outside Diameter
FT3035 ¹⁰	34.5 mm (1.36 in)	44.0 mm (1.73 in)
5P-7428 ⁴	38.1 mm (1.50 in)	48.0 mm (1.88 in)
1P-1831	38.1 mm (1.50 in)	50.8 mm (2.00 in)
1P-1832	44.5 mm (1.75 in)	57.2 mm (2.25 in)
5P-2145 ²	49.3 mm (2.00 in)	57.7 mm (2.38 in)
1P-1833	50.8 mm (2.00 in)	63.5 mm (2.50 in)
5P-4749 ²	52.3 mm (2.12 in)	65.0 mm (2.62 in)
1P-1834	57.2 mm (2.25 in)	69.9 mm (2.75 in)
1P-1835	63.5 mm (2.50 in)	76.2 mm (3.00 in)
1P-1836	69.9 mm (2.75 in)	82.6 mm (3.25 in)
1P-1837	76.2 mm (3.00 in)	88.9 mm (3.50 in)
9U-5337 ⁹	79.0 mm (3.11 in)	91.0 mm (3.58 in)
5P-8601 ⁶	82.6 mm (3.25 in)	88.9 mm (3.50 in)
1P-1838	82.6 mm (3.25 in)	95.3 mm (3.75 in)
1P-1839	88.9 mm (3.50 in)	101.6 mm (4.00 in)
5P-7398 ⁵	95.3 mm (3.75 in)	101.6 mm (4.00 in)
1P-1840 ¹	95.3 mm (3.75 in)	108.0 mm (4.25 in)

Part No.	Small Outside Diameter	Large Outside Diameter
1P-1841	101.6 mm (4.00 in)	117.3 mm (4.62 in) or 120.7 mm (4.75 in)
5P-7399 ³	108.0 mm (4.25 in)	120.7 mm (4.75 in)
1P-1842	114.3 mm (4.50 in)	133.4 mm (5.25 in)
9U-6907 ⁹	119.0 mm (4.69 in)	145.4 mm (5.72 in)
1P-1843	120.7 mm (4.75 in)	136.7 mm (5.38 in)
1P-1844	127.0 mm (5.00 in)	146.1 mm (5.75 in)
9U-6261 ⁹	139.0 mm (5.47 in)	160.0 mm (6.30 in)
5P-8707 ⁷	152.4 mm (6.00 in)	171.5 mm (6.75 in)
1U-6217 ⁹	159.0 mm (6.26 in)	185.4 mm (7.30 in)
6V-0027 ⁸	165.1 mm (6.50 in)	184.2 mm (7.25 in)
9U-6904 ⁹	199.0 mm (7.83 in)	225.4 mm (8.87 in)
9U-6906 ⁹	219.0 mm (8.62 in)	245.4 mm (9.66 in)
9U-6905 ⁹	239.0 mm (9.41 in)	285.1 mm (11.22 in)
318-4271 ¹¹	263.0 mm (10.35 in)	276.0 mm (10.87 in)

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

¹ Also used on hitch upper bearing on 627 Scraper

² Usage described in VST6

³ Used for vertical hitch bearings on 631D, 633D and 637D Scrapers

⁴ Used for draft frame steering link bushing on 613B Scrapers

⁵ Used for hitch lateral pitch bushings on 631D, 633D, and 637D Tractor-Scrapers

⁶ Used for hitch bearing removal on 621B, 623B and 627B Scrapers

⁷ Used for removal of 245 stick and boom bearings

⁸ Used for removal and installation of 992C loader linkage bearings

⁹ Used for removal of stick and boom bearings on 5130 and 5230 Excavators

¹⁰ Used for removal of boom swing bearing on 302.5 Excavator

¹¹ Used for removal of 8P-8929 Bearing on DIIT

FT3052 Receiving Sleeve

SMCS Code: 6504

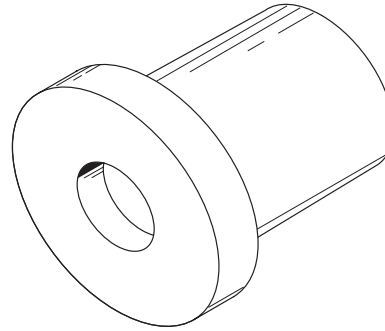
Model: BH150 and BH160 Backhoe Attachment

Essential Tool

Warranty: None

NEW TOOL

- Used to remove linkage bearings
- Used with 3S-6224 Electric Hydraulic Pump Group, 6V-3160 Double Acting Cylinder, 6V-2078 Stud, 1P-1831 Adapter, 1A-1935 Full Nut, and 5P-8250 Washer



Reference

REN4477, Service Manual, BH150 and BH160 Skid Steer Loader Backhoes, Bucket Cylinder - Remove and Install

FT2531 Bearing Press Plate (5130, 5230)

FT2537 Bearing Press Plate (5110)

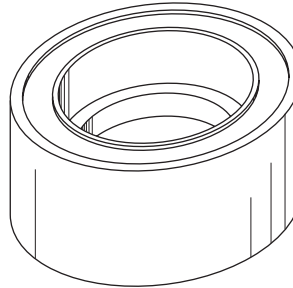
SMCS Code: 5459-016

Model: 5110, 5130 and 5230 Excavators

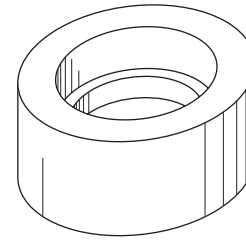
Warranty: None

FT2531 and FT2537 Bearing Press Plates

- Used to install upper bearing on output pinion to correct depth on shaft (extends bearing life by eliminating improper assembly)
- Used with hydraulic press or M16/M20 threaded rod and nut
- Plate presses bearing completely into cartridge which eliminates high bearing preload stresses due to improper assembly
- Center hole provides clearance for puller stud (threaded hole in shaft can be used with a stud and nut to pull pressing plate onto shaft and install bearing, if hydraulic press is not available)
- Material: SAE1018 steel
- Surface finish: F



FT2531



FT2537

FT2531 Bearing Press Plate (only)

- Used to install 108-8047 Roller Bearing into 6I-7233 Swing Drive Group
- Automatically sets depth of bearing and bearing preload when pressing bearing onto 110-6179 Shaft and into 110-6184 Cartridge
- Recessed area makes sure pressing plate contacts bearing's inner and outer race, while also providing clearance for bearing cage
- 2 threaded holes are provided for lifting eyes

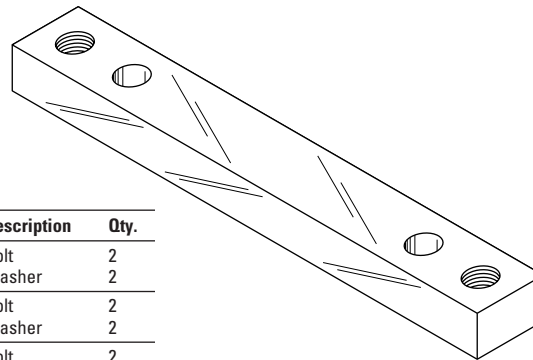
FT0886 Adapter

SMCS Code: 7070-011

Model: 950, 966C, 980 and 988 Wheel Loaders

Warranty: None

- Use with two 3L-2227 Forcing Bolts and bolts and washers listed below to remove lift cylinder trunnion bearing retainers



Model	Part No.	Description	Qty.
950, 966C	1A-1460	Bolt	2
	4B-4280	Washer	2
980	8S-4734	Bolt	2
	4B-5059	Washer	2
988	1A-1135	Bolt	2
	4B-4281	Washer	2

988 Lift Arm Repair Fixtures

SMCS Code: 7070-040

Model: 988

Warranty: Six Months

- 9K-4992 Lift Arm Repair Group provides new right and left lift arm supports for 988 lift arms that have experienced excessive wear or failure in area of lift cylinder pinbores
- FT0903 Template (1) should be used to locate new supports as indicated below



Reference

GMG00467, Reworking Procedure

Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and Assembly

Motor Grader Controls,
Cable Control and Winch

Loader Lift Arm and
Excavator Implement

Implements, Frame,
Hitch and Suspension

8T-3194 Pin Puller Adapter

SMCS Code: 4050-010, 4150-010, 5450-010, 6500-010, 7050-010

Model: 235, 245

Warranty: Six Months

- Similar to 9S-5556 Adapter in all dimensions except for threaded length; additional length of threads needed during installation of sprocket wheels on 235 and 245 Excavators and for installation of large final drive gear onto 235 Excavator sprocket shaft; in these applications, 8T-3194 Adapter is to be used instead of currently specified 9S-5556 Adapter
- Also a general usage service tool for use in applications where greater thread engagement is needed than can be obtained with 9S-5556 Adapter
- 9S-5556 Adapter has not been discontinued, as there are still applications where shorter thread length is required



Part No.	Description	Threads	Length
8T-3194	Adapter	12-2A	64 mm (2.5 in) (increase of 25.4 mm (1.0 in) from 9S-5556 Adapter)
9S-5556	Adapter	12-2A	38.1 mm (1½ in)

220-1776 Puller Stud (M36x4)

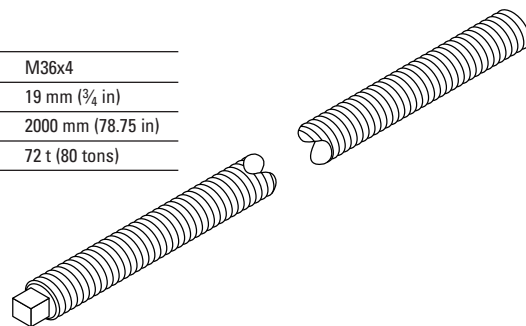
SMCS Code: 7069, 0745

Model: 988G, 992G Large Wheel Loader

Warranty: Six Months

- Used to remove front linkage pins (Y) and (K)
- Used with 134-8466 Receiving Sleeve Assembly
- Helps safely remove pins up to 1775 mm (70.0 in) long
- Heat-treated for added durability and long life

Thread	M36x4
Square drive	19 mm (¾ in)
Overall length	2000 mm (78.75 in)
Maximum capacity	72 t (80 tons)



8T-5270 Adapter

SMCS Code: 6100-011, 5104-012

Model: 992C, 994

Warranty: Six Months

- Replaces discontinued 6V-2071 Adapter
- Made from stronger and heavier hex stock
- Reduces 2.00-12 internal threads to 1.50-12 internal threads; will accommodate 6V-2074 Stud
- Used primarily to remove linkage pins from 992C Wheel Loaders
- Also general usage tool wherever reduction of thread size from 2.00-12 to 1.50-12 required



Working capacity	890 kN (100 short tons)
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221-9575 Pin Pulling Threaded Adapter

SMCS Code: 6100-011

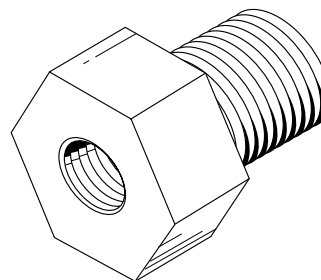
Model: 385B Hydraulic Excavator

Warranty: Six Months

- Used to remove boom pins and boom cylinder foot pins
- Reduces M48 x 5.0 threaded hole to M30 x 3.5
- Heat-treated for added durability and long tool life
- 50 tons maximum pulling capacity

Reference

385B Disassembly and Assembly Manual, Machine Systems



173-6747 Seal Installation Ring

173-6748 Seal Installation Plunger

SMCS Code: 7071-012, 0700

Model: 988G Wheel Loader

Essential Tool

Warranty: Six Months

- Used to install 160 mm (6.3 in) MFL seals in front linkage
- Installation tool and plunger provides consistent seat depth without damaging seal

173-6745 Seal Installation Ring

173-6746 Seal Installation Plunger

SMCS Code: 7071-012, 0700

Model: 988G Wheel Loader

Essential Tool

Warranty: Six Months

- Used to install 120 mm (4.7 in) MFL seals in front linkage
- Installation tool and plunger provides consistent seat depth without damaging seal

Implements, Frame, Hitch and Suspension

175-5507 Nitrogen Charging Group

SMCS Code: 7201-045
Model: Most Caterpillar Machines
Warranty: Six Months

- Used to charge accumulators with pressures up to 20,666 kPa (3000 PSI)
- Replaces 1S-8940 Nitrogen Charging Group; 1S-8940 can be updated and then can charge up to 12,400 kPa (1800 PSI) (see chart below for parts to purchase)
- Gauges in group have bourdon tube assembly; this type of gauge gives its most accurate reading in center of dial; important to use gauge that will record desired pressure in or near center third of calibrated dial
- Quick disconnect couplings allow gauge to be changed quickly and easily

Reference

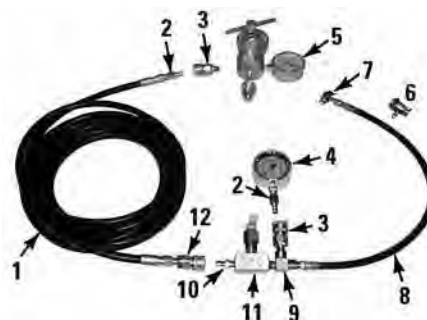
NEHS0742, Tool Operating Manual



Item	Part No.	Description
1	9U-6219	Tool Box
2	2P-8289	Holder Block

NOTICE

The 175-5507 Group is not recommended for tire inflation because of the associated higher pressures and increased line flow restrictions.



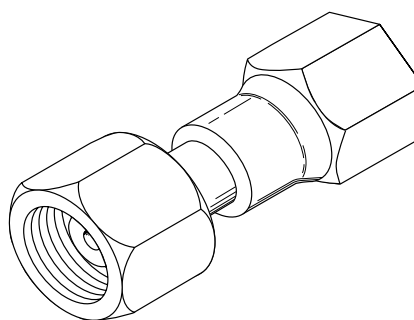
Item	Part No.	Description
1	162-4147	Hose Assembly
2	8S-4600	Nipple FPT
3	8S-1506	Disc Coupling Assembly, MPT
4	8T-0859	Pressure Gauge
5	162-4146	Regulator Assembly
6	7S-5106	Chuck
7	1S-8938	Air Chuck
8	1S-8941	Hose Assembly
9	2D-7325	Pipe Tee
10	2S-5244	Nipple
11	1S-8937	Needle Valve
12	8S-4599	Coupling Assembly
Not shown	8S-5098	Warning Film
Optional tool used with 175-5507:		
	4Z-8499	Gas Charging Kit, for D10 Impact Ripper

187-0525 Nitrogen Adapter

SMCS Code: 7201-045
Model: 450, 460, 465, 480, and 485 Lexion Combines
Essential Tool
Warranty: Six Months

- Used to connect Caterpillar regulator to certain German nitrogen supply bottles
- Used with 162-4146 Regulator (part of **175-5507** Nitrogen Charging Kit)
- Female 0.96-14 NGO thd x female W24 32 x 1/4 in thd

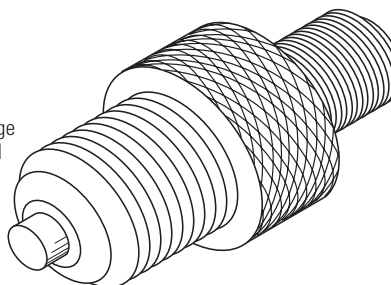
NOTE: See local nitrogen gas supplier for correct bottles, gas, instructions, and connectors.



5P-2963 Charging Adapter

SMCS Code: 1716, 3000, 4000, 4197, 4331, 5077
Model: Various Cat Machines
Warranty: Six Months

- Used with **175-5507** Nitrogen Charging Group to pressure check and charge accumulator for 8D-8920 Bostrom-Norseman Suspension Seat Group used on Caterpillar Wheel Tractor-Scrapers
- 0.311 in-32 thd x 0.500 in-20 thd
- Service part: 4J-7533 Seal



References

SEBP3775
SEBD9268
KENR5019
SEBF8272-01
RENRA4183
SENRA1429
REGO1569

Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and Assembly

Motor Grader Controls,
Cable Control and Winch

Loader Lift Arm and
Excavator Implement

Implements, Frame,
Hitch and Suspension

150-2332 Charging Adapter

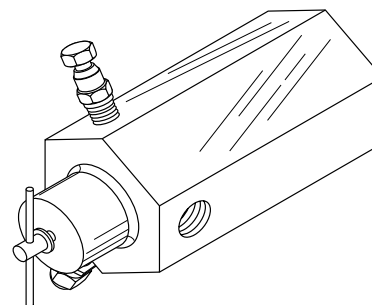
SMCS Code: 0647, 4263, 4293, 4331, 5077

Model: 785 A, B, and C; 789 A, B, and C; 793 A, B, C, CXQ, and D; 797 Off-Highway Trucks

Essential Tool

Warranty: One Year

- Used to charge or check charge pressure on Greer accumulators with Schrader valve
- Used with 8T-0859 Pressure Gauge with 0 to 3600 PSI range and **175-5507** Nitrogen Charging Group
- Thread engages accumulator body instead of Schrader valve
- T-handle depresses Schrader valve on accumulator
- Adapter has bleed valve and Schrader valve connection for charging group



References

SEPD0438

REN8336

SENR1452-10

Body size	38.1 mm (1.50 in) hex
Overall length (without handle)	92.0 mm (3.6 in)
Body thread size	7/8-14
Pressure gauge thread size	1/4-18 NPTF

227-1415 Charging Adapter

227-9942 Charge Hose Assembly

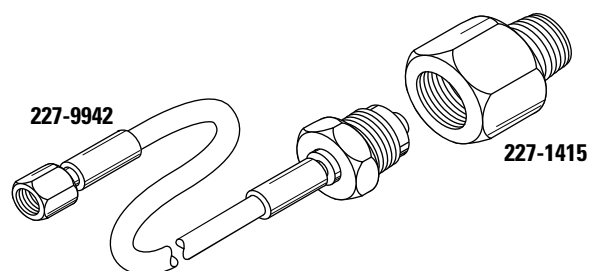
SMCS Code: 4263, 4293, 4331

Model: 797B Off Highway Trucks

Essential Tool

Warranty: Six Months

- Used to charge steering accumulator
- Used with **175-5507** Nitrogen Charging Group
- Long charging hose allows supply bottle to remain on ground during charging process
- 227-1415 Charging Adapter adapts current nitrogen charging group regulator to fit 227-9942 Charge Hose Assembly
- 227-1415 male 1/2-14 NPT thd x female 1-14-2B thd
- 227-9942 male M14 x 1.5-6H thd x female W26.41x 1/14 thd



References

REN2579-02

REN2581-06

Hose length	10 m (32 ft)
Maximum pressure	37,921 kPa (5500 PSI)

175-7410 Auxiliary Fitting Group

SMCS Code: 0756-745, 7960

Model: Articulated Dump Trucks, Off-Highway Trucks, Underground Mining Dump Trucks

Warranty: Six Months

- Used to modify **175-5507** Nitrogen Charging Group to permit charging 2 cylinders at the same time
- Particularly convenient in charging of truck suspension cylinders

References

REN8317-00

SENR1557-02

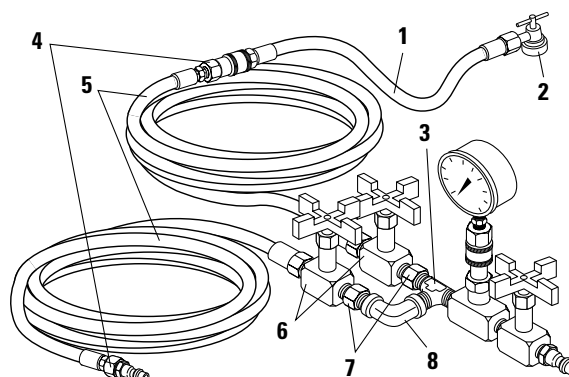
REHS1507-02

REHS0878-04

SEHS9411-04

NEHS0742

Item	Part No.	Description	Qty.
1	1S-8941	Hose	
2	7S-5106	Chuck	
3	2D-7325	Tee	
4	8S-7169	Coupling	2
5	175-6857	Hose Assembly	2
6	1S-8937	Valve	2
7	5P-8998	Nipple	2
8	3D-8884	Elbow (90°)	



This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

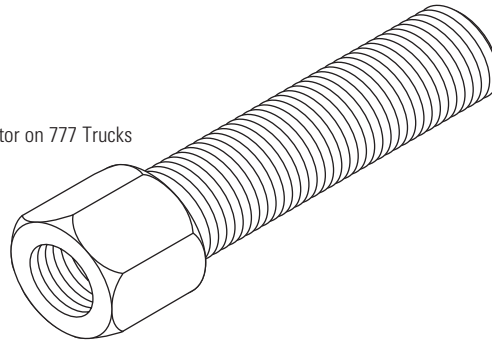
7S-5439 Extension

SMCS Code: 0738, 4339, 5077, 5081, 5102
Model: Various Cat Machines
Warranty: Six Months

- Used with **17S-5507** Nitrogen Charging Group to charge 9J-2019 Steering Accumulator on 777 Trucks
- .482 in-26 thd (male and female)
- Service part: 8S-4344 Washer
- Maximum working pressure: 435 kPa (3000 PSI)

References

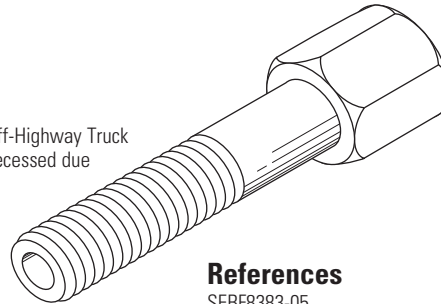
REN3826-08
SENR1934-08
SEBU6316-01
SEPD0683-00



1U-5551 Valve Extension

SMCS Code: 3000, 4000, 4157, 4197, 4331, 5050, 5057, 5077
Model: Various Cat Machines
Warranty: Six Months

- Accessory to **17S-5507** Nitrogen Charging Group needed to test and charge 785 and 789 Off-Highway Truck hydraulic nitrogen-charged steering system accumulators with recessed ports (ports now recessed due to accumulator design change that allows nitrogen bladder servicing)
- Can also be used to test and charge non-recessed accumulator ports
- Couples to chuck of 17S-5507 Nitrogen Charging Group
- Maximum pressure: 435 kPa (3000 PSI)
- 0.305 in-32 thd (male and female)



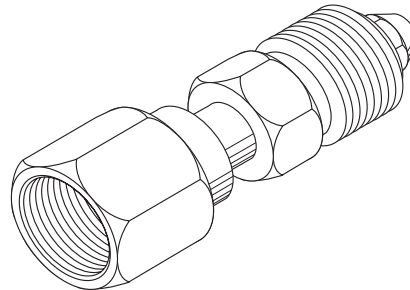
References

SEBF8383-05
REN2535-10
SENR1463-07
SEPD0506

6V-7879 Nitrogen Regulator Adapter

SMCS Code: 4203-045
Model: Most Caterpillar Models
Warranty: Six Months

- Used to connect 162-4146 Regulator, part of **17S-5507** Nitrogen Charging Group, and 6V-4037 Regulator, part of 6V-4040 Nitrogen Tire Inflation Group, to nitrogen bottles from some sources outside the US
- 0.960-14 NGO internal righthand thread and $\frac{5}{8}$ BSP external righthand thread
- Permits 162-4146 and 6V-4037 Regulators to be used on nitrogen bottles with shutoff valves having $\frac{5}{8}$ BSP internal righthand thread



9U-6740 Accumulator Charging Group

SMCS Code: 0647, 5077-036, 6333, 5081, 7201-045
Model: E180, EL180, EL240, EL300, MS120-8, MS180 LC-8, MS240 LC-8, MS300-5, MS300 LC-8, 214B and 224B Excavators, CB-314, CS-551, CP-323 and CS-323 Compactors
Warranty: Six Months

- 9U-6740 replaces discontinued 4C-4166 Accumulator Charging Group
- Allow accumulator charge to be checked and/or serviced — necessary for proper operation and performance of affected circuits

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

WARNING

Dry nitrogen is the only gas approved for use in the accumulator. Charging the accumulator with oxygen gas will cause an explosion. This danger will not happen if nitrogen cylinders with standard CGA (Compressed Gas Association, Inc.) number 580 connections are used. When you order nitrogen gas, be sure that the cylinders are equipped with CGA No. 580 connections. Do not use color codes or other methods of identification to tell the difference between nitrogen and oxygen cylinders.



Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and Assembly

Motor Grader Controls,
Cable Control and Winch

Loader Lift Arm and
Excavator Implement

Implements, Frame,
Hitch and Suspension

- Specifically designed to charge 7X-5626, 5W-9971, and 8U-3661 Diaphragm Accumulators that do not utilize a "Schrader" charging valve which is common to most other accumulators
- Gauge and bleed valve permit direct connection to nitrogen charging cylinder
- Valve connects to accumulator's M28 x 1.5 thd
- Fitting connects directly to nitrogen charging cylinder having male W24.32 x 1/4 thd (DIN 477 #10 Type A, nitrogen)

NOTE: The 9U-6740 Tool Group is assembled with the W24.32 x 1/4 Fitting. If Adapter is required (for 0.960-14 NGO, U.S. Nitrogen Bottles), simply remove fitting from assembly, and replace with adapter.

- 6V-7879 Adapter (not included) must be ordered separately to provide method of connecting to U.S. nitrogen charging cylinders having a female 5/8-14 BSP thd (BSP #341 nitrogen); 6V-7879 Adapter is used along with Adapter

Reference

NEHS0598, Tool Operating Manual

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

9U-6740 Accumulator Charging Group

Consists of	Charging Valve, with Bleed-Off Gauge Hose Protective Case
Weight	2.3 kg (5.00 lb)
9U-6739 Hose Assembly	
Length	250 cm (8 ft.)
Diameter	10.0 mm (0.394 in)
Swivel nut connection (female)	W24.32 x 1/4 thd (DIN 477 #10 Type A, nitrogen)
Swivel nut connection (female)	M14 x 1.5 thd
Working pressure	20,670 kPa (3,000 PSI)

9U-6739 Service/Repair Parts

Part No.	Description
9U-6739	Hose Assembly
9U-6738	Seal
9U-6741	Adapter
1P-7326	Gasket (service repair for 9U-6741 Adapter)

9U-6741 Charging Adapter

SMCS Code: 6333-016, 5077-045, 4263-045

Model: Various Excavators, Material Handlers, Hydraulic Hammers, and Articulated Trucks

Warranty: Six Months

- Adapter connects hose to U.S. nitrogen bottles (low pressure)
- Used with 334-1071 Adapter

References

REN4478-00

SEBE8658-03

SEPD0673-00

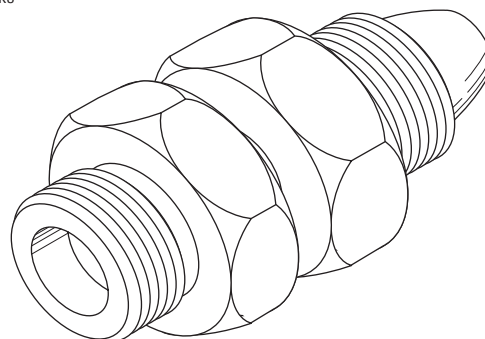
REN9125-01

REN6728-00

REN4478-00

Male connection	W24.32 x 1/4 thd (DIN 477 #10 Type A, nitrogen)
Male swivel	(0.960 - 14) U. S. thd CGA #580

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.



152-2023 Accumulator Charging Group

- Used only on high pressure nitrogen bottles
- Used to charge various accumulators on 206B, 212B, 214B, 224B Wheel-Type Excavators; CB314, CS551, CP323, CS323 Compactors; and all Excavators and Backhoe Loaders using hydraulic hammer attachment; Challenger 35, 45 and 55
- Packaged in protective carrying case for convenience and to reduce damage
- Hose assembly connects directly to nitrogen bottle with DIN specifications
- 334-1071 Adapter, 9U-6741 Adapter and 9U-6739 Hose Assembly required to connect hose to U.S. nitrogen bottles (low pressure)
- An additional 6V-7879 Adapter (not shown) must be ordered separately to provide a method of connecting to English nitrogen charging cylinders having a female 5/8-14 BSP thd (BSP #341 nitrogen); the 6V-7879 Adapter is used along with the 9U-6741 Adapter
- 151-8856 Charging Seal is required on 130-7623 Accumulators (130-7623 used only on Challenger 35 S/N 8DM00201 and Up, Challenger 45 S/N 1DR00201 and Up, and Challenger 55 S/N 7DM00201 and Up); the 151-8856 needs to be ordered separately

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

! WARNING

Dry nitrogen is the only gas approved for use in the accumulator. Charging the accumulator with oxygen gas will cause an explosion. This danger will not happen if nitrogen cylinders with standard CGA (Compressed Gas Association, Inc.) number 580 connections are used. When you order nitrogen gas, be sure that the cylinders are equipped with CGA No. 580 connections. Do not use color codes or other methods of identification to tell the difference between nitrogen and oxygen cylinders.

When charging the accumulators on machines equipped with hydraulic hammers, some additional tools will be required. The parts listed below may be required with the 9U-6740 or 152-2023 Accumulator Charging Group.

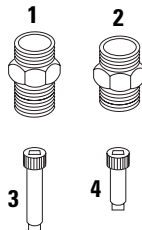
Vehicle System Tools



NOTE: It is recommended that a 175-5507 Nitrogen Charging Group be connected between the 9U-7640 or 152-2023 Accumulator Charging Group and the nitrogen bottle. This will allow the pressure to be controlled and regulated. See NEHS0598 Tool Operating Manual for additional instructions.

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Consists of	186-6225 Charging Adapter Assembly Charging valve, with bleed-off and Gauge 199-9040 Hose 152-2024 Seal Protective Case
Weight	2.3 kg (5.0 lb)
199-9040 Hose Assembly	
Length	250 cm (8 ft.)
Diameter	10.0 mm (0.394 in)
Swivel connection (male)	CGA 680
Swivel nut connection (female)	M14 x 1.5 thd
Working pressure	385 bar (5500 PSI)
152-2024 O-ring Seal	
Plastic seal	OD 20 mm (0.787 in) ID 11.5 mm (0.453 in) thickness 2.0 mm (0.079 in)

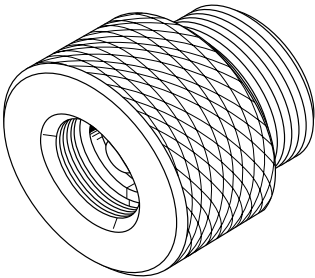


Additional Tooling Required for Hydraulic Hammers		
Item	Part No.	Description
1	7Q-8501	Adapter
2	7Q-8498	Adapter
3	7Q-8502	Pin
4	7Q-8499	Pin
Not shown		
	4J-0522	O-ring Seal
	3K-0360	Seal (2)
	2M-9780	O-ring Seal

209-2112 Nitrogen Adapter

Model: MT735, MT745, MT765, MT835, MT855, and MT865 GEN 111 Challenger Tractor
Warranty: Six Months

- Used to provide required connection between charging kit and accumulator
- Used with **152-2023** Nitrogen Charge Kit
- Male M28 x 1.5 thd x female M16 x 2 thd

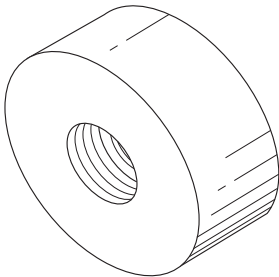


4C-4321 Adapter

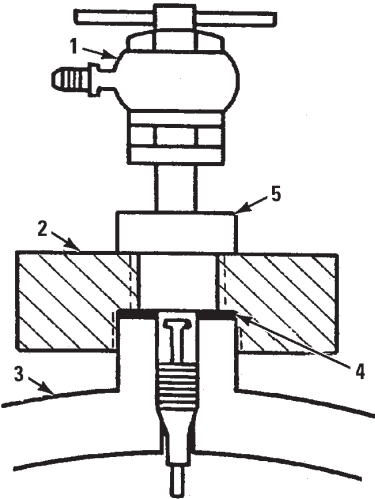
- Used to adapt threads of accumulator filling valve neck to 5P-2963 Adapter and 1S-8938 Chuck
- Hose from **175-5507** Nitrogen Charging Group is then connected to fitting on 1S-8938 Chuck
- 1/2-20-2B thd x female 5/8-18-2B thd

Reference

SEPD0046



Item	Part No.	Description
1	1S-8938	Chuck
2	4C-4321	Adapter (Includes 247-2708 Gasket)
3	941043	Accumulator
4	247-2708	Gasket (part of 4C-4321 Adapter Group; also part of accumulator cap or available as separate part)
5	5P-2963	Adapter (existing)



Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and AssemblyMotor Grader Controls,
Cable Control and WinchLoader Lift Arm and
Excavator ImplementImplements, Frame,
Hitch and Suspension

185-4458 Nitrogen Adapter Group

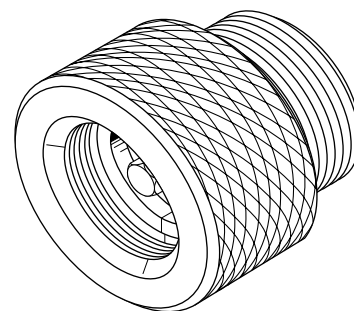
SMCS Code: 5077-045, 5077-081-PX

Model: M313C, M315C, M316C, M318C, M322C, M312C, M315, M318 and M320 Wheel Excavators

Essential Tool

Warranty: Six Months

- Used to connect nitrogen charging kits to Leduc accumulators
- Used with **9U-6740** or **152-2023** Accumulator Charging Group
- Connects to accumulators on feeder housing hydraulic system
- Male M28 x 1.5-6g thd x female ISO 228-G ¾ thd



References

REN6984

REN6999

247-3359 Accumulator Piston Installer

247-3361 Accumulator Seal Installer

SMCS Code: 732

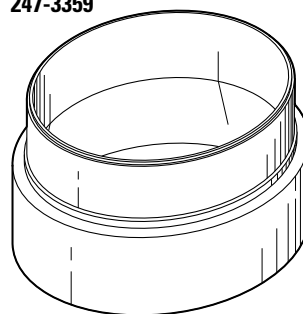
Model: 797B Off Highway Truck

Essential Tool

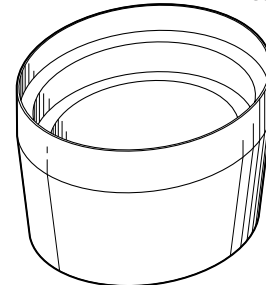
Warranty: Six Months

- Used to assemble piston into steering accumulator without damaging new seals
- Seal installer makes seal installation onto piston much easier and prevents damage
- Piston installer is placed into accumulator and piston is pressed through installer — prevents seal damage by accumulator threads

247-3359



247-3361



Reference

SEPD0740-00

9U-5980 Accumulator Lifting Clamp

SMCS Code: 4331-010

Model: 785, 789 and 793 Off-Highway Trucks

Warranty: Six Months

- Used to remove and install steering accumulators
- Removal and installation of the accumulators is very difficult without this clamp (accumulator does not have any convenient lift point; removal and installation with straps alone not recommended because of potential for slippage)
- Provides squeezing-type force for safe, slip-free handling of cylinders
- Has two link brackets (part of lifting clamp) to provide balanced pickup points to assist with placement
- All grease, oil, and dirt must be removed from accumulators and lifting clamp before installing clamp
- Used with truck crane, other boom-type crane, and chain/sling/hooks



This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Lifting capacity	600 kg (1320 lb)
Accommodates cylinders with diameters	228 mm (9 in)
Weight (approximate)	4 kg (8.8 lb)
Band-type clamp made of two bands measuring	9.5 x 32 x 318 mm (0.38 x 1.25 x 12.5 in)
Link brackets attached with	½-13 bolts

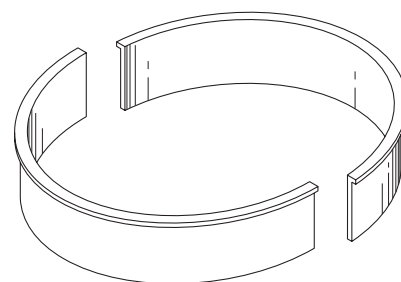
FT3050 Accumulator Sleeve (Steering)

SMCS Code: 4331-010

Model: 797 Off-Highway Trucks (JSM1-UP)

Warranty: None

- Used to remove and install steering accumulators (2 required)
- Used with 9U-5980 Accumulator Lifting Clamp
- When used with 9U-5980, sleeves provide a compression force which provides slip-free handling of steering accumulators
- Adapts 228.0 mm (9.00 in) diameter of 9U-5980 to accommodate 220 mm (8.66 in) diameter of steering accumulators
- Material: SAE1020M Steel Tubing



Maximum load rating for 9U-5980	600 kg (1320 lb)
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Reference

797 Off-Highway Truck Disassembly and Assembly Service Manual, Steering Accumulator Cylinders Remove and Install

Accumulator Tools for Hydraulic Hammer

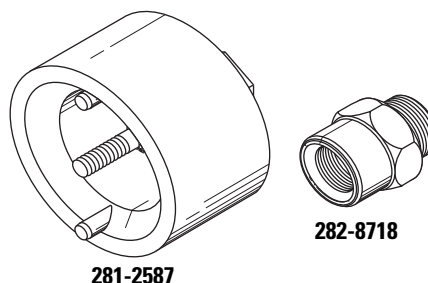
SMCS Code: 7201-045
Model: PH 126 Hydraulic Hammer
Essential Tool
Warranty: Six Months

- Used with 121-6583 Accumulator Charging Kit

Reference

REN6996, Hydraulic Hammer Disassembly and Assembly

Part No.	Description	Use
281-2587	Spanner Wrench	Remove and install top cover of accumulator for servicing
282-8718	Charging Adapter	Recharge nitrogen-filled accumulator



Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

Implements, Frame, Hitch and Suspension

1U-9386 Nut

SMCS Code: 6810-011
Model: D11N Track-Type Tractor
Warranty: Six Months

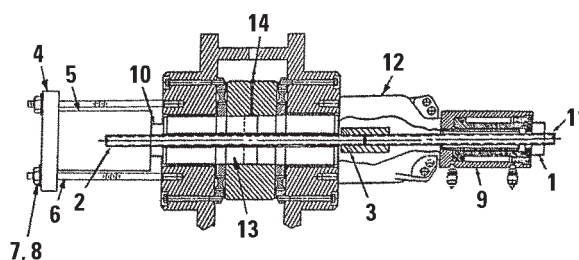
- Additional tools needed to remove impact ripper shank pin (numbers 1, 2, and 3 on illustration of all removal tooling)
- Available on MAO (made as ordered) basis; delivery within 30 days of receipt of order

Reference

SEBF0578, Special Instruction

Part No.	Description	Thread	Length
1U-9386	Nut	2½-8-2B	51 mm (2.01 in)

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.



Tooling Setup for Removal (viewed from rear of tractor)

Item	Part No.	Description
1	1U-9386	Nut
2	—	Stud
3	—	Coupler
4	—	Cover Assembly
5	—	Push Cylinder Group
6	5P-4776	Threaded Rod (4)
7	1A-1935	Nut
8	5P-8250	Washer
9	—	Pull Cylinder Group
10	1U-9386	Nut
	5P-5208	Nut
11	5P-5207	Stud
12	1S-6645	Puller Sleeve Assembly
13		Shank Pin
14		Grease Fitting

9U-5617 Oil Refill Unit

SMCS Code: 7201-000, 7213
Model: 769, 773, 777, 785, 789, and 793 Trucks
Warranty: Six Months

- Refills suspension cylinder with oil without the need of circulating oil to remove trapped nitrogen
- No need to evacuate old suspension cylinder oil
- System will compress nitrogen remaining in suspension cylinder oil
- Reservoir: 38 liters (10 gal)
- Hydraulic pressure: 8200 kPa (1200 PSI) with 820 kPa (120 PSI) air pressure

Reference

SEHS9411, Special Instruction, Suspension Cylinder Servicing

Part No.	Description
4C-8880	Elevator
7S-5106	Air Chuck
9U-5618	Bracket
9U-5619	Block
9U-5672	Barrel Assembly
9U-5675	Valve
9U-5676	Coupler
9U-5677	Nipple (Valved)
9U-5679	Strainer
9U-5680	Check Valve
9U-5682	Nipple
9U-5683	Coupler Valve
9U-5684	Breather



H-Link Bore Rework Tools for Cushion Hitch Tractors-Scrapers

SMCS Code: 7110-064

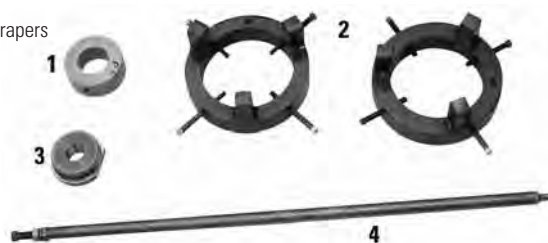
Model: 621, 623, 627, 631, 633, 637, 641, 651 and 657 Cushion Hitch Tractors-Scrapers

Warranty: Six Months

- Fabricated tools used with parts of 1P-4000 Line Boring Tool Group and other tools to remove bushings, rebore, and install oversized bushings in H-Link bores in bracket and hitch castings of cushion hitch tractor-scrappers
- Standard and oversized bushings available

Reference

SMHS6872, Special Instruction



H-Link Bores Rework Tools						
Item	Part No.	Description	Qty.	Remove	Rebore	Install
1	FT1241	Centering Ring	1		1	
2	FT1130-1	Fixture	2		1	
3	FT1299	Adapter (641, 651, 657) or	1	X		
	FT1231	Adapter	1	X		
4	FT1242-1	Measuring Bar ¹	1		X	
Not shown						
	8S-6587	Adapter	1	X		X
	5F-7366	Screw	1	X		X
	6V-3160	Hydraulic Puller	1	X		X
	7F-5283	Head	1	X		X
	5F-7353	Washer	1	X		X
	5B-0637	Nut	1	X		X
	1P-1838	Adapter	1			X
	5P-2981	Feed Assembly ²	1		X	
	1P-2344	Centering Ring	2		1	
	5P-1630	Drive Adapter ²	1		X	
	1P-2366	Holder Assembly ²	1		X	
		½ in Drill (reversible)	1		X	
	FT1243	Tool Bit			X	

¹ FT1242-1 Bar can be used on all tractor-scrappers; former FT1242 Bar can be used for 631, 633, 637 Tractor-Scrapers only.

² Part of 1P-4000 Line Boring Tool Group

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

FT1129 Centering Rings

FT1130 Holding Fixture

SMCS Code: 7100-064

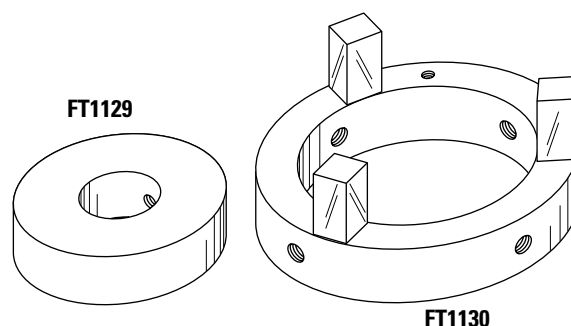
Model: 641B, 651B, and 657B Tractor-Scrapers

Warranty: None

- Front horizontal hitch pin bore can become oversized due to normal wear
- Bore can be built up with weld and these tools used with 1P-4000 Line Boring Group to restore bore to correct size
- FT1129 Centering Ring: 2 required

Reference

Service Letter, August 17, 1973



FT1173 Centering Rings

FT1184 Torsion Bar

SMCS Code: 7100-064

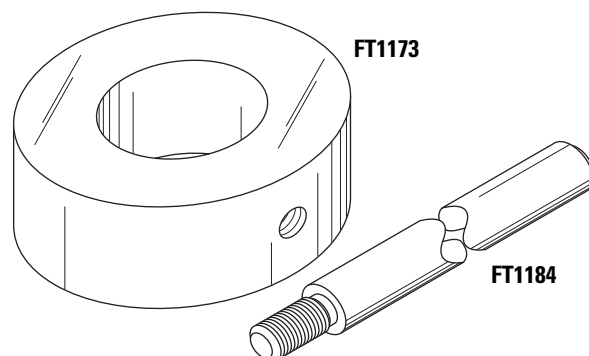
Model: 627 and 627 Push-Pull Tractor-Scrapers

Warranty: None

- Used with FT1140 Fixture and 1P-4000 Line Boring Tool Group to rework front horizontal hitch pin bore
- FT1173 Centering Ring: 2 required

Reference

Service Letter, October 2, 1973



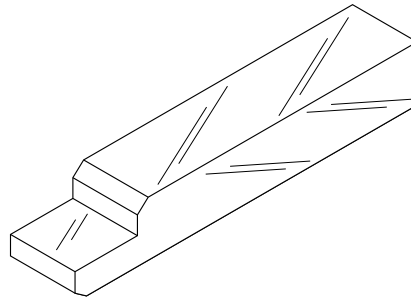
1U-9364 Strut Gauge

SMCS Code: 7201-036
Model: 785 and 789 Off-Highway Trucks
Warranty: Six Months

- Used to measure/check for proper oil/nitrogen charge in front suspension cylinders
- Hold strut and spindle a specific distance apart, 265 mm (10.43 in), during nitrogen charging process (used with 175-5507 Nitrogen Charging Group)
- Weight: 5.1 kg (11.2 lb)

References

SEN4016; Service Manual; 785 Suspension Cylinders, Systems Operation, Testing and Adjusting
SEN3436; Service Manual; 789 Suspension Cylinders, Systems Operation, Testing and Adjusting



FT1680 Strut Gauge

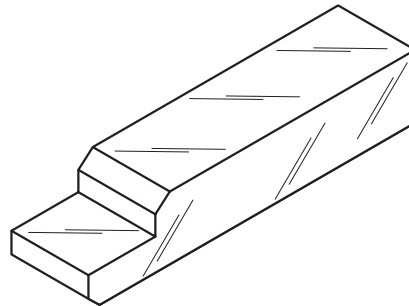
SMCS Code: 7201-045
Model: 769C, 773B and 777 Trucks; 768C, 772B and 776 Tractors
Warranty: None

- Used during oil and nitrogen charging procedure for front suspension cylinders (2 required)

Reference

Service Magazine, November 1, 1982

Part No.	Description
FT1103	Mast Hanger
FT1102	Store Rack



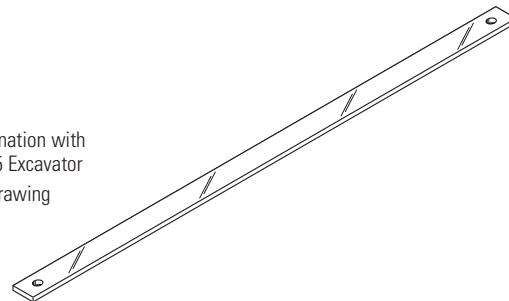
FT1229 Lifting Bars

SMCS Code: 4150-010, 4150-011, 4150-012
Model: 215, 225, 235, 235C
Warranty: None

- In absence of appropriate overhead crane, use two FT1229 Lifting Bars, in combination with other tools, to remove and install upper frame and cab from undercarriage of 235 Excavator
- For fabrication instructions for specific machines by serial number, see FT1229 drawing

Reference

Service Manual



Cushion Hitch Accumulator Disassembly Tools

SMCS Code: 7107-015
Model: All Current Tractor-Scrapers
Warranty: None

- Used for efficient and safe disassembly of cushion hitch accumulators on all current tractor-scraper
- Used with standard 914.4 mm (36 in) long, 1/2 inch-13 threaded rod, standard 1/2 inch-13, nut and a flat washer



Part No.	Use
FT1253	Fixture used to remove pistons from 127.0 mm (5.0 in) diameter bore accumulators
FT1254	Fixture used to remove pistons from 209.6 mm (8.25 in) bore accumulators

FT2982 Spanner Socket

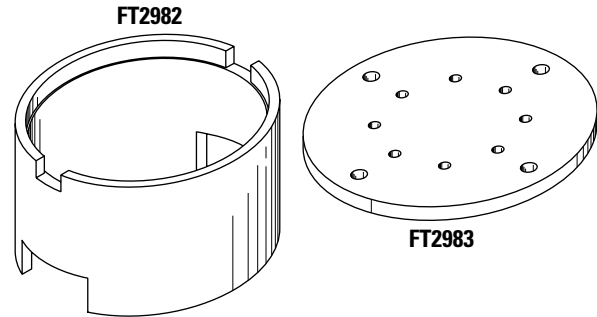
FT2983 Reaction Plate

SMCS Code: 017-5904-GBX

Model: 621F, 627F, 621G, 627G, 631G, 637G, 631E, 637E, 651E,
and 657E Wheel Tractor Scrapers equipped with power augers**Essential Tool**

Warranty: None

- Used to remove and install auger drive gearbox nut on 153-5101 and 153-5099 Auger Groups
- Used with the 127-8458 Final Drive Disassembly and Assembly Bench
- Required installation torque: 14,778 N·m (10,900 ft·lb)
- Material: SAE1020 steel



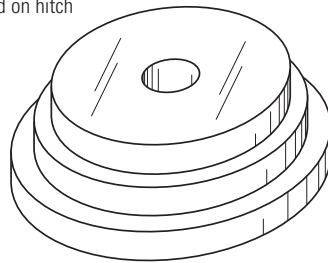
FT0888 Pivot Bearing Adjusting Adapter

SMCS Code: 7057-010

Model: 920 and 930 Wheel Loaders

Warranty: None

- Used for adjusting preload on hitch lower pivot pin bearing (2 required)



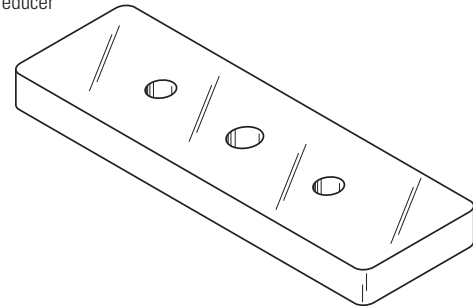
FT0601 Puller Bar

SMCS Code: 6236-011

Model: J621 Elevating Scraper

Warranty: None

- Used to remove cover from input side of speed reducer



5P-2706 Chain Clamp Assembly

SMCS Code:

Model: Elevating Scraper

Warranty: Six Months

- Elevating scraper chain disassembly and assembly is simplified with the use of this tool
- Chain clamp jaws are applicable to the narrowest elevator chain currently in the Caterpillar products line
- Usable on the heaviest current elevator chain

Chain clamp jaws width	34.1 mm (1.38 in)
Load capacity	2 ton

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Service/Repair Parts	
Part No.	Description
1B-7411	Nut
3K-8282	Pin
2J-3507	Nut
1A-1935	Nut

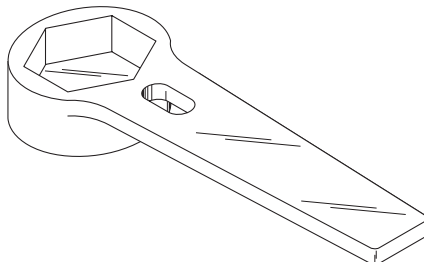
FT1122 Drive Wrench

SMCS Code: 6236-012

Model: J619 and J621 Elevating Scrapers

Warranty: None

- Used to facilitate installation of drive hub on elevator speed reducer



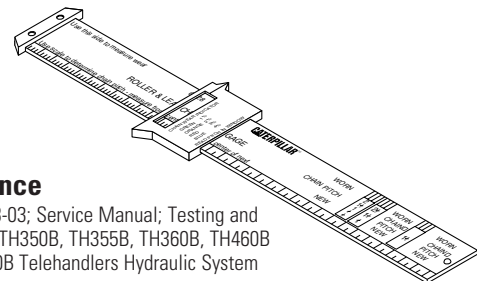
6V-0028 Wear Gauge

SMCS Code: 6460 0763

Model: TH350B (SLD1-Up), TH355B (JRK1-Up), TH360B (SLE1-Up),
TH460B (SLF1-Up), TH560B (SLG1-Up)

Warranty: Six Months

- Used to measure chain elongation on telescoping boom chain



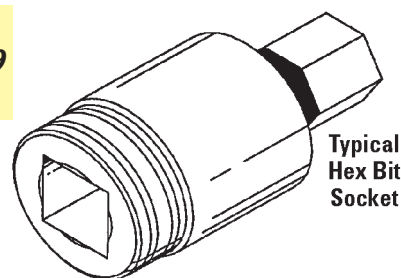
Reference

REN5188-03; Service Manual; Testing and Adjusting TH350B, TH355B, TH360B, TH460B and TH560B Telehandlers Hydraulic System

Hex Bit Sockets

SMCS Code: 5070-010, 5084-010, 0601
Model: General Usage and 5000 Series Mining Excavators
Warranty: Six Months

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.



Typical Hex Bit Socket

- Used to remove and install metric socket head cap screws from pumps
- Used with ¾ inch and 1 inch drive ratchet and breaker bar
- 129-4552 Hex Bit Socket replaces discontinued 1U-9475
- 129-4553 Hex Bit replaces discontinued 1U-9477

Reference

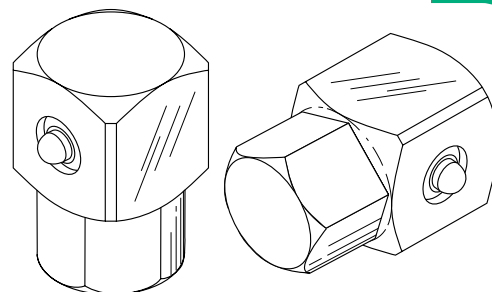
SENR6058, Service Manual

Part No.	Drive	Hex Bit Size	Maximum Torque	Capscrew Size	Replacement Bit
1U-9474	1 in	22 mm	3075 N-m (2275 ft-lb)	M30	1U-9476
129-4552	1 in	27 mm	3125 N-m (2300 ft-lb)	M36	129-4553

251-8155 Adapter Assembly

SMCS Code: 7213-010
Model: 793 Off-Highway Trucks (4AR246-UP, 4GZ, ATY, CBR)
Warranty: Six Months

- Used to remove and install the six 7Y-5217 Socket Head Bolts used on rear suspension cylinder pins (¾ inch Square Drive x 17 mm Hex)
- Used with 162-8718 Torque Wrench and the 6V-4170 ¾ inch Female Square Drive Adapter
- Required to access bolts in confined area with limited clearance between the bolt head and tire
- Works on any 793 Off-Highway Truck starting with 4AR246, or any 793 Off-Highway Truck earlier models that have been retrofitted with the anti-rotation flag plate
- Heat treated for added strength
- Equipped with retention pin to stay engaged in square drive adapter



References

793 Off-Highway Truck Disassembly and Assembly Manual, Rear Suspension Cylinder Remove and Install

SEPD0774, Service Magazine Article, New Tooling Facilitates the Installation and Removal of Bolts on the Rear Suspension Cylinder

Plates

SMCS Code: 7051-029, 7054-077, 7057-025
Model: 992C Wheel Loader
Warranty: None

- Used to check preload on bearings on main frame hitch assembly

Reference

992C Service Manual

Part No.	Qty.	Use
FT1385	2	Hitch upper bearings
FT1386	2	Hitch lower bearings



Upper and Lower Plate Groups

SMCS Code: 7051-029, 7054-077, 7057-025
Model: See below

Essential Tool

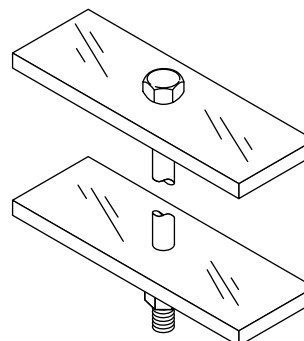
Warranty: None

- Used to check bearing preload on main frame hitch assembly

Reference

994 Machine Systems Disassembly and Assembly Manual, FT2627 and FT2628 Upper and Lower Plate Groups

Part No.	Model	Material
Upper Plate Groups		
FT2627	994 Wheel Loader	1E-0170 steel (290 to 450 MPa yield)
FT2826	950GII and 962GII Wheel Loaders	SAE1018 steel
FT2828	988G Wheel Loader	SAE1018 steel
Lower Plate Groups		
FT2628	994 Wheel Loader	1E-0170 steel (290 to 450 MPa yield)
FT2825	950GII and 962GII Wheel Loaders	SAE1018 steel
FT2827	988G Wheel Loader	SAE1018 steel



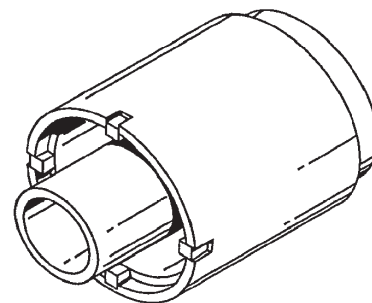
4C-9416 Locknut Spanner Wrench

SMCS Code: 6640-17

Model: AP-1050, AP-1000 and AP-800C Asphalt Pavers

Warranty: Six Months

- Used to quickly and easily remove and install both 2H-3778 Spanner Nuts, the locknuts for Extend-A-Mat® B Screed extender sloper pivot pins (assembly requires an inner spanner nut, star washer, and outer spanner locknut)
- Used with $\frac{3}{4}$ inch square drive torque wrench — torque specification for 2 nuts is 545 ± 25 N-m (400 ± 20 ft-lb)
- Due to its location, nut is extremely difficult to access using any other tooling
- Wrench uses an inner pilot to prevent it from slipping off during removal and installation of inner spanner nut (makes removal and installation much easier)
- Pilot also keeps wrench teeth engaged in spanner nut when removing and installing outer locknut (helps prevent slippage, resulting in damage to nut or injury to mechanic)
- Wrench is heat-treated for improved durability



Outside diameter	88.9 mm (3.50 in)
Overall length	76.2 mm (3.00 in)
Spanner teeth	4, equally spaced
Tooth width	6.0 mm (0.24 in)
Square drive	$\frac{3}{4}$ in
Approximate weight	2 kg (5 lb)

Reference

KENR2527, Service Manual, Disassembly and Assembly

Pin Nut Spanner Wrenches

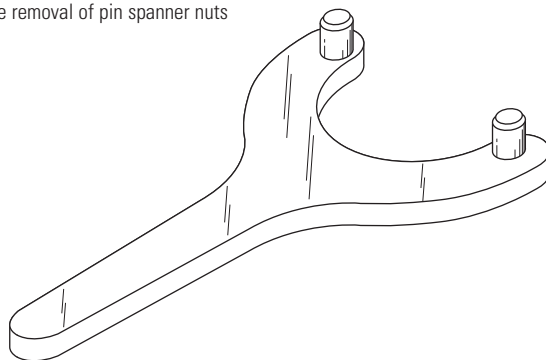
SMCS Code: 5100-017

Model: Demolition Tool Attachments

Essential Tool

Warranty: None

- Used to remove and install pin spanner nuts
- Works on spanner nuts from 102 to 330 mm (4.0 to 13.0 in)
- Easily fabricated tools reduce investment cost
- Reduces damage caused by using hammer and punch
- Allows safe removal of pin spanner nuts



Pin Nut Spanner Wrenches for Vibra Ram Models

Part No.	Cylinder Pin Model	Arm Pin Model	Rotator Cylinder
FT2565	S12	—	—
FT2566	S18	—	—
FT2567	S25, S30, S40, P16, P20, P25, P28, P40, CR20, CR28	CR20, CR28	—
FT2568	S50, S70	—	—
FT2569	—	P16, P20, P28	—
FT2570	—	S18, S25	—
FT2571	—	—	—
FT2572	CR50	P40	—
FT2573	—	CR35	—
FT2574	—	S30	—
FT2575	—	S40, S70	—
FT2576	S80	—	—
FT2577	—	CR50	—
FT2578	—	S50	—
FT2579	—	P60	—
FT2580	—	S80	—
FT2743	—	—	S50, S130

Rotary Axle Pinion and Bevel Gear Tooling

SMCS Code: 5633-082

Model: RM350 Reclaimer/Mixer

Warranty: Six Months

Pinion Bevel Gear Tooling

- Used to measure and align pinion to bevel gear (1U-5847, 129-7156, 129-7157, and 129-1758)
- When completely assembled in differential housing, tools provide stackup dimension of gear set and provide method to obtain shim pack measurement
- Tools are precisely machined to provide correct and accurate assembly adjustment using procedures provided in Service Manual

129-7159 Measuring Ring

- Used to determine thickness of shim required for correct assembly of pinion input shaft
- No other measuring method will provide results as fast and accurately as using this tool

129-7160 Seal Driver

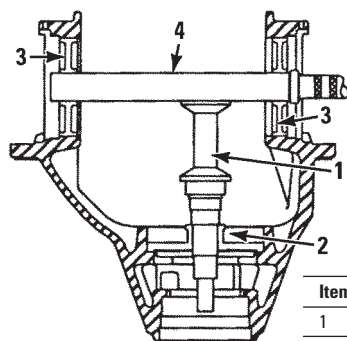
- Used to install differential oil seal after pinion and bevel gear have been assembled
- Driver ensures seal is installed to correct depth (also ensures seal is installed exactly perpendicular to shaft; eliminates cocked seals)
- Eliminates seal damage which can be caused during seal installation using conventional tooling
- Heat-treated for durability

References

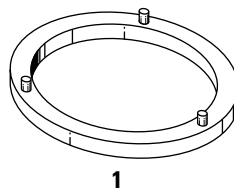
KENR2560, Service Manual

KENR2573, Service Manual

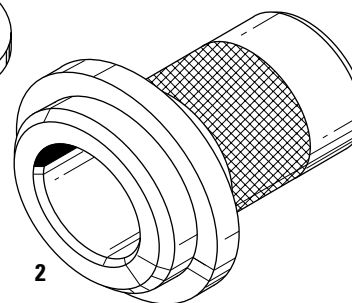
Vehicle System Tools



Item	Part No.	Description
1	129-7158	Measuring Pin
2	129-7157	Thrust Washer
3	129-7156	Shim
4	1U-5847	Measuring Shaft



Item	Part No.	Description
1	129-7159	Measuring Ring
2	129-7160	Seal Driver



Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and Assembly

Motor Grader Controls,
Cable Control and Winch

Loader Lift Arm and
Excavator Implement

Implements, Frame,
Hitch and Suspension

Hitch Bearing Puller Adapters

SMCS Code: 7100-010

Model: See Below

Warranty: Six Months

Part No.	Step Plate Diameter	Thread Size	Use	Model
5P-7398	95.3 x 101.6 mm (3.75 x 4.0 in)	1.25 in-12 thd	Removal and installation of hitch lateral pitch bushings	631D, 633D and 637D Tractor-Scrapers
5P-8601	82.6 x 88.9 mm (3.25 x 3.50 in)	1.25 in-12 thd	Removal and installation of appropriate size bushings and bearings	621B, 623B and 627B Scraper hitches
5P-7399	108 x 121 mm (4.25 x 4.75 in)	1.25 in-12 thd	Removal and installation of vertical hitch bearings	631D, 633D and 637D Scrapers

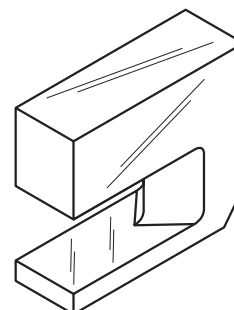
FT2773 Reaction Arm

SMCS Code: 7063-010

Model: 365B Hydraulic Excavator

Warranty: None

- Used to remove and install inner swing bearing bolts
- Used with 1U-6221 Hydraulic Wrench HY-2XLCT and 1U-6222 46 mm (1.81 in) Low Clearance Hex Link
- Fabricated from 1U-6228 Reaction Arm



Threaded Rod and Extended Hex Wrench

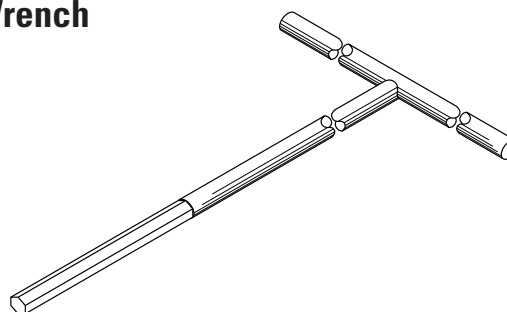
SMCS Code: 6460-010, 6460-017, 0745

Model: TH62, TH63, TH82, and TH83 Telescopic Material Handler

Warranty: None

FT2512 Threaded Rod

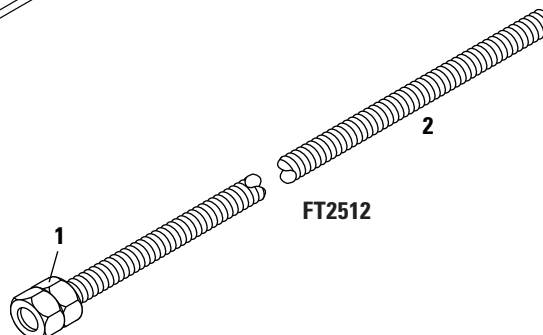
- Used to remove and install boom wear pads
- Works as an extension handle to reach between box boom section to hold wear pads in place
- Provides a fast and easy way to capture wear pads by threading into end of wear pad



FT2513 Extended Hex Wrench

- Used to remove chain underblock pin on third section of boom
- Tee handled hex key wrench has extended length to reach underblock pin
- Provides fast and easy removal and installation

Item	Part No.	Description	Thread	Qty.
1	5P-7970	Nut	M8 x 1.25	2
2	1U-6341	Rod	M8 x 1.25	



147-3508 Socket Wrench

SMCS Code: 6408-010

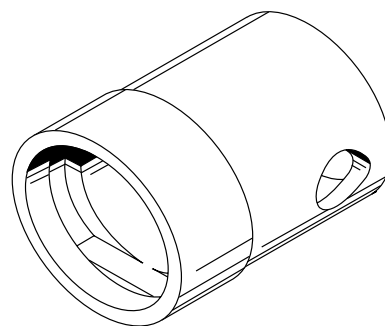
Model: RT80, RT100, TH82, TH83, and TH103 Telehandler

Essential Tool

Warranty: Six Months

- Used to make removal and installation of 081-6212 Nut faster and easier
- Provides adequate length to engage nut
- Socket pilots around nut for positive engagement
- Cross hole provided for bar or handle

Outside diameter	88.9 mm (3.50 in)
Inside diameter	76.2 mm (3.00 in)
Overall length	114.3 mm (4.50 in)
Cross hole diameter	27.0 mm (1.06 in)
Distance across flats	65.52 mm (2.580 in)



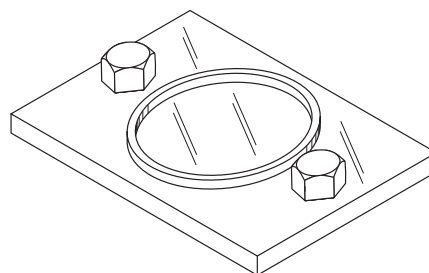
FT3022 Support Plate

SMCS Code: 7056

Model: TH580B (SLH) Telehandler

Warranty: None

- Used to position a lifting device directly under counterweight's center of gravity
- Makes counterweight removal much easier



FT1362 Ladder

SMCS Code: 7300-010

Model: 14G and 16G Motor Graders

Warranty: None

- Makes service work much easier when working on components at or near cab floor of 14G and 16G Motor Graders



5P-7321 Spacer

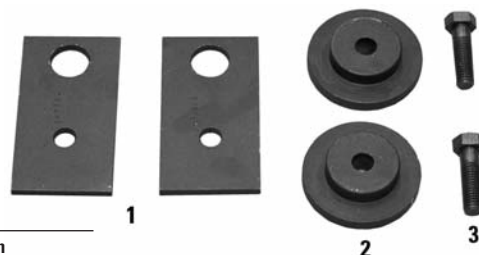
SMCS Code: 7300-012

Model: D6D Tractor

Warranty: Six Months

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

- Required for tilting or installing semi-modular cab
- 5P-7321 Spacers and two plates needed for positioning dash on tractor when tilting or removing cab or when installing new cab



Reference

SMHS7062, Special Instruction

Item	Part No.	Description
1	—	Plate
2	5P-7321	Spacer
3	1A-1460	Bolt (for attachment)

Cab Removal and Installation Tool

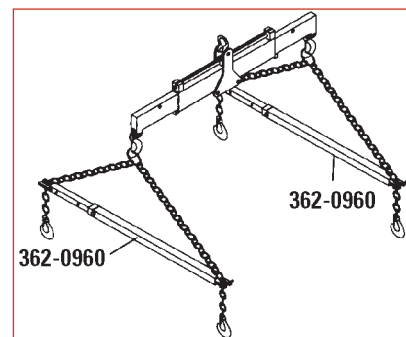
SMCS Code: 7301-010

Model: 416C, 426C, 428C, 436C, and 438C Backhoe Loaders

Warranty: Six Months

European Union compliant, CE marked

- Requires double chain sling with 12.7 mm (½ in) chain and 6V-3145 Load Leveler (not supplied with tool)
- Adjustable length from 1067 mm (42.0 in) to 1677 mm (66.0 in) in increments of 76 mm (3.0 in)
- Used with a double sling chain to lift cab vertically at attach points eliminates side loading
- End pin keeps chain from becoming disengaged when device is being used



Reference

SEN1206, Service Manual, Disassembly and Assembly - 416C, 426C, 428C, 436C, and 438C Backhoe Loaders Power Train

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

362-0960 Spreader Bar Assembly

Lifting capacity (WLL)	454 kg (1000 lb)
Adjustable length	1067 - 1677 mm (42.0 - 66.0 in)
Incremental adjustment	76 mm (3.0 in)
Tube size (external)	44.5 mm (1.75 in)
Tube size (internal)	38.1 mm (1.50 in)

318-1491 Offset Wrench

SMCS Code: 7301-010, 7301-079

Model: 140M and 160M Monarch Series Motor Graders

Essential Tool

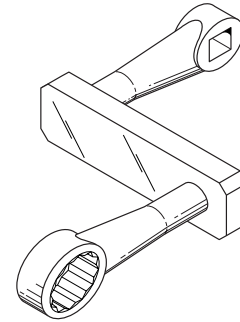
Warranty: Six Months

NEW TOOL

- Used to remove and install cab bolts without removing fuel tank
- Reduces service time by eliminating fuel tank removal
- Required to properly tighten cab bolts to required 635 N-m (470 ft-lb) of torque during installation
- Durable welded construction
- ¾ inch square drive x 36 mm, 12 point, box-end wrench

Reference

Service Manual, 140M and 160M Disassembly and Assembly



FT2943 Cab Spacer

SMCS Code: 7301-010

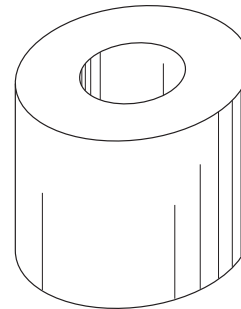
Model: Medium Wheel Loaders

Warranty: None

- Used to remove and install cab
- Used with 138-7575 Link Brackets
- Material: SAE4140 steel

Reference

Service Manual, 924G and 928G Power Train Disassembly and Assembly



307-4561 Block Gauge Assembly

SMCS Code: 7342-722, 7342-723

Model: D8, D9, D10 Track-Type Tractors applies to following serial number ranges for standard cabs: RJG1 – 892, RJS1 – 648, KPZ1 – 1375, J8B1 – 995

Essential Tool

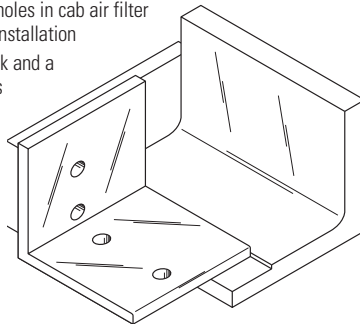
Warranty: Six Months

NEW TOOL

- Used to rework mounting holes in cab air filter bracket to provide proper installation
- Used as both a gauge block and a template to drill new holes
- Relocation of cab filter eliminates system leaks
- Tool will only be available for 2 years

Reference

REBE1668 Service Letter



312-6543 Block Gauge Assembly

SMCS Code: 7342-722, 7342-723

Model: D8, D9, D10 Track-Type Tractors applies to following serial number ranges for enhanced cabs: D8T-J8B 24 to 942, D8T-KPZ 325 to 1494, D9T-RJS 118 to 748, and D10T-RJG 105 to 938

Essential Tool

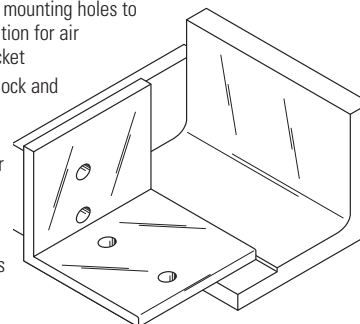
Warranty: Six Months

NEW TOOL

- Used to rework in-cab mounting holes to provide proper installation for air conditioning filter bracket
- Used as both gauge block and template to drill new bracket holes
- Relocation of cab filter bracket eliminates system air leaks
- Tool will only be available for two years

Reference

REBE1668, Service Letter



258-5686 Impact Socket

SMCS Code: 7266-010, 7301-010

Model: 789A (9ZC1-UP), 789B (7EK1-UP), and 789C (2BW1-UP) Off-Highway Trucks

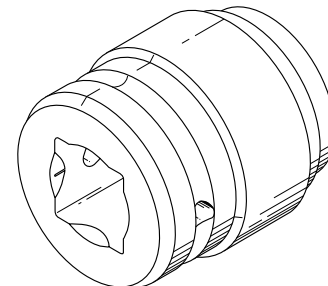
Essential Tool

Warranty: Six Months

- Used to remove and install bolts securing cab support assemblies (outriggers) to frame assembly
- Used with 222-3054 Impact Wrench or other similar tool
- 2-step outside diameter provides required clearance
- Industrial finish helps prevent rust and corrosion
- 1 inch square drive with 1½ inch 6-point socket opening

Reference

SEBE9071, Service Letter, Product Improvement Program for Inspecting and/or Replacing the Rear Cab Support on Certain 789 Off-Highway Trucks



Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and Assembly

Motor Grader Controls,
Cable Control and Winch

Loader Lift Arm and
Excavator Implement

Implements, Frame,
Hitch and Suspension

FT1211 Gauging Washer

SMCS Code: 6200-029

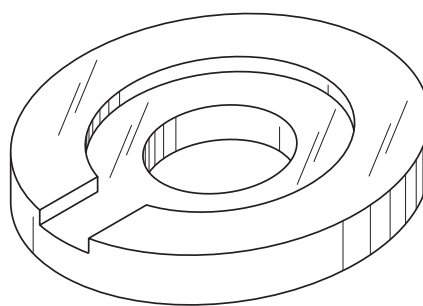
Model: 613 Tractor-Scrapers

Warranty: None

- Replaces 2P-8288 Washer
- Used to determine shim thickness for lower vertical hitch pin

Reference

GMG02109, Special Instruction



5P-7323 Bearing Nut Spanner Wrench

SMCS Code: 3108-010

Model: 988B

Warranty: Six Months

- Used to remove and install spanner nut which retains bearing in implement pump drive on 988B Wheel Loaders



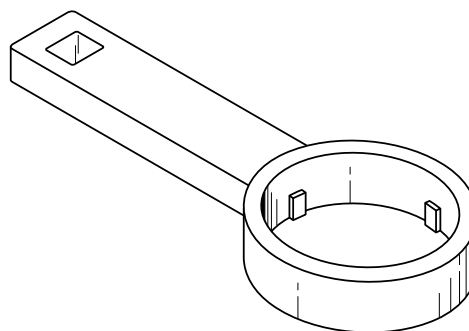
219-0476 Spanner Wrench

SMCS Code: 7057-029, 7116-010

Model: 570B and 580B Harvesters

Warranty: Six Months

- Used to remove and install 161-5560 Spanner Nut (articulation hitch)
- Used with $\frac{3}{4}$ inch drive torque wrench
- Effective torque wrench adapter length is 200 mm (7.87 in)
(example: If required torque is 500 N·m [369 ft-lb] and if 9U-5007 Torque Wrench is used, dial reading should be 420 N·m [310 ft-lb])



References

REN6145, Service Manual, Machine Systems Disassembly and Assembly

SEN8203, Service Manual, Vehicle Systems Disassembly and Assembly (D400D)

Pin Driver Caps

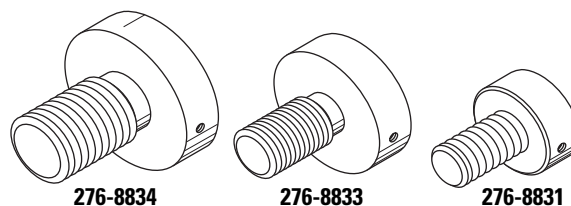
SMCS Code: 6501-012, 6502-012, 6503-012

Model: 345C, 365C, 385C Hydraulic Excavators

Essential Tool

Warranty: Six Months

- Used to protect linkage pins from damage during installation
- Longer thread engagement for thicker flag pins
- Heat-treated for added durability
- Side holes in head allow pins to be installed or removed using a spanner wrench



Part No.	Thread Size	Thread Length
276-8831	M30 x 3.5	51.1 mm (2.01 in)
276-8833	M36 x 4.0	58.5 mm (2.30 in)
276-8834	M48 x 5.0	71.5 mm (2.81 in)

Reference

Disassembly and Assembly Service Manual for 345C, 365C, and 385C

FT2929 Spanner Wrench

SMCS Code: 7057-029, 7116-010

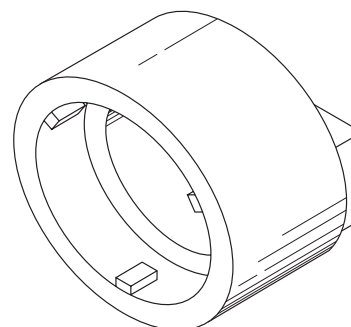
Model: 570B and 580B Harvesters

Warranty: None

- Used to remove and install 161-5558 and 156-0093 Spanner Nuts on boom assembly
- Used with $\frac{3}{4}$ inch drive torque wrench

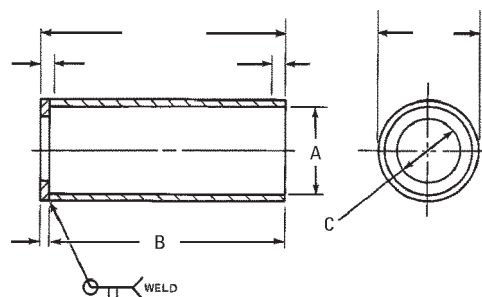
Reference

REN6145, Service Manual, Machine Systems Disassembly and Assembly



Summary of Receiving Sleeves, Adapter Plates, Pin Driver Caps, Receiving Sleeves with Adapters

Receiving Sleeves



Part No.	Description	A Maximum Pin Diameter	B Maximum Pin Length	C Stud Hole Diameter
FT2544	Receiving Sleeve	305.0 mm (12.00 in)	—	—
FT-2729	Receiving Sleeve	303.0 mm (11.93 in)	685.0 mm (26.97 in)	Open end (4C-9492)
9U-7765	Receiving Sleeve Assembly	284.0 mm (11.18 in)	762.0 mm (30.00 in)	Open end (9U-6501)
124-4641	Sleeve-Receiver	263.0 mm (10.35 in)	216.0 mm (8.50 in)	Open end (9U-6501)
124-4640	Sleeve Assembly	254.0 mm (10.00 in)	450.0 mm (17.72 in)	—
161-1783	Receiving Sleeve	249.1 mm (9.80 in)	1556.0 mm (61.26 in)	—
9U-6791	Receiving Sleeve	244.0 mm (9.61 in)	1800.0 mm (70.87 in)	140.0 mm (5.51 in)
1U-6202	Puller Assembly	243.0 mm (9.57 in)	450.0 mm (17.72 in)	68.0 mm (2.68 in)
161-1783	Sleeve-Receiver	228.6 mm (9.00 in)	1556 mm (61.26 in)	66.0 mm (2.60 in)
4C-9493	Sleeve	227.0 mm (8.94 in)	160.0 mm (6.30 in)	52.5 mm (2.07 in)
4C-9491	Receiving Sleeve	227.0 mm (8.94 in)	300.0 mm (11.81 in)	52.5 mm (2.07 in)
FT-2384	Receiving Sleeve Assembly	208.0 mm (8.19 in)	550.0 mm (21.65 in)	Open end (4C-9490)
134-8466	Sleeve Assembly	205.0 mm (8.07 in)	1284.0 mm (50.55 in)	68.0 mm (2.68 in)
9U-6792	Receiving Sleeve Assembly	201.0 mm (7.91 in)	1825.0 mm (71.85 in)	83.0 mm (3.27 in)
5P-7E70	Sleeve Assembly	198.0 mm (7.79 in)	180.0 mm (7.09 in)	101.0 mm (3.98 in)
FT-2545	Receiving Sleeve	184.15 mm (7.25 in)	—	165.0 mm (6.50 in)
9U-6706	Receiving Sleeve	180.0 mm (7.09 in)	438.0 mm (17.24 in)	83.0 mm (3.27 in)
6V-2072	Sleeve Assembly	176.0 mm (6.93 in)	240.0 mm (9.45 in)	40.0 mm (1.58 in)
134-8471 (accessories)	Receiving Sleeve	170.0 mm (6.69 in)	1315 mm (51.77 in)	Open end
1M-6756	Sleeve Assembly	166.0 mm (6.54 in)	202.0 mm (7.95 in)	33.0 mm (1.30 in)
4C-8163	Sleeve Assembly	163.0 mm (6.42 in)	890.0 mm (35.04 in)	70.0 mm (2.76 in)
134-8470 (accessories)	Receiving Sleeve	163.0 mm (6.42 in)	1315 mm (51.77 in)	Open end
9S-5431	Sleeve Assembly	149.0 mm (5.87 in)	187.0 mm (7.36 in)	101.6 mm (4.00 in)
FT-0768 (pin holder)	Receiving Sleeve Assembly	148.0 mm (5.83 in)	127.0 mm (5.00 in)	Open end (4C-9490)
FT-2549	Receiving Sleeve	130.0 mm (5.12 in)	140.0 mm (5.51 in)	70.0 mm (2.76 in)
6V-2097	Receiving Sleeve	130.0 mm (5.12 in)	75.0 mm (2.95 in)	39.0 mm (1.54 in)
9S-5564	Sleeve Assembly	115.0 mm (4.53 in)	431.0 mm (16.97 in)	33.0 mm (1.30 in)
6V-2098	Sleeve	112.0 mm (4.41 in)	76.0 mm (2.99 in)	39.0 mm (1.54 in)
6V-2108	Receiving Sleeve	106.0 mm (4.17 in)	74.0 mm (2.91 in)	Open end (129-6672)
7F-6068	Sleeve Assembly	100.0 mm (3.94 in)	215.0 mm (8.46 in)	Open end (5P-8713)
9S-5565	Sleeve Assembly	74.0 mm (2.91 in)	355.0 mm (13.98 in)	33.0 mm (1.30 in)
9U-5671	Receiver Sleeve Adapter	36.0 mm (1.42 in)	98.0 mm (3.86 in)	Open end
9U-5671	Sleeve	36.0 mm (1.42 in)	98.0 mm (3.86 in)	Open end
6V-6982	Sleeve Assembly	Approx. 28.0 mm (1.10 in)	Approx. 125.0 mm (4.92 in)	Approx. 25.0 mm (0.98 in)

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Brake and
Steering Systems

Hydraulic System Tools

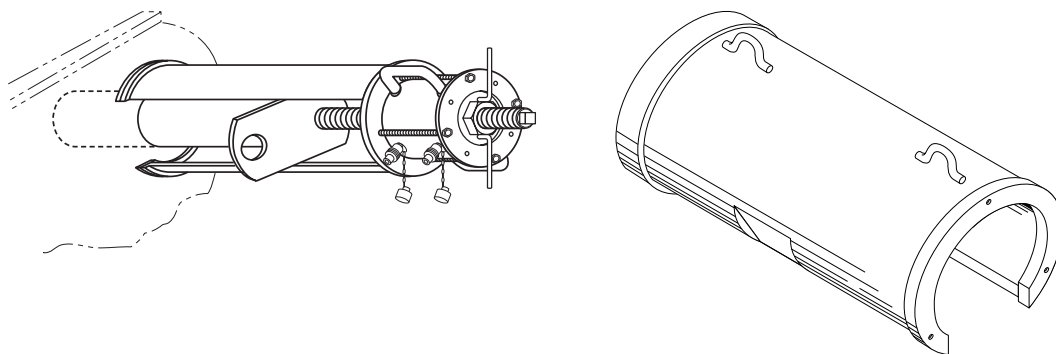
Hydraulic Component
Disassembly and Assembly

Motor Grader Controls,
Cable Control and Winch

Loader Lift Arm and
Excavator Implement

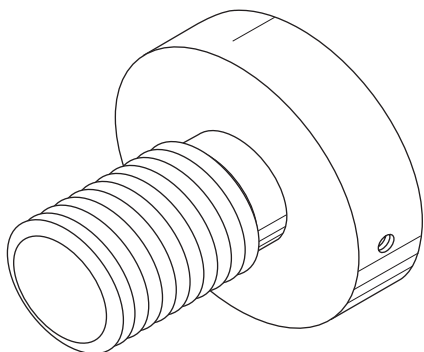
Implements, Frame,
Hitch and Suspension

Receiving Flag Sleeves



Part No.	Description	Maximum Pin Diameter	Maximum Pin Length	Stud Hole Diameter	Flag Clearance
155-8191	Sleeve	313.0 mm (12.32 in)	1473.8 mm (58.02 in)	68.0 mm (2.68 in)	234.0 mm (9.21 in)
4C-8149	Sleeve Assembly	298.0 mm (11.73 in)	660.0 mm (25.98 in)	70.0 mm (2.76 in)	203.2 mm (8.00 in)
323-7335	Sleeve Assembly	298.0 mm (11.73 in)	660.0 mm (25.98 in)	70.0 mm (2.76 in)	203.2 mm (8.00 in)
237-9180	Receiving Sleeve Assembly	247.7 mm (9.75 in)	545.0 mm (21.47 in)	68.0 mm (2.68 in)	165.0 mm (6.50 in)
137-8792	Sleeve Assembly	238.0 mm (9.37 in)	305.0 mm (12.00 in)	68.0 mm (2.68 in)	135.0 mm (5.31 in)
FT-2457	Receiving Sleeve Assembly	214.0 mm (8.43 in)	127.0 mm (5.00 in)	open end (4C-9492)	164.0 mm (6.46 in)
9U-6751	Receiving Sleeve	214.0 mm (8.43 in)	330.0 mm (12.99 in)	52.0 mm (2.05 in)	164.0 mm (6.46 in)
FT-2503 (9U-6752)	Receiving Sleeve	214.0 mm (8.43 in)	1143.0 mm (45.00 in)	70.0 mm (2.76 in)	164.0 mm (6.46 in)
9U-6752	Receiving Sleeve	214.0 mm (8.43 in)	1143.0 mm (45.00 in)	52.0 mm (2.05 in)	164.0 mm (6.46 in)
287-2153	Sleeve Assembly	152.0 mm (6.00 in)	812.0 mm (31.90 in)	36.0 mm (1.40 in)	152.0 mm (6.00 in)
9S-5433 (accessories)	Puller Adapter	150.9 mm (5.94 in)	158.8 mm (6.25 in)	Open end	147.3 mm (5.80 in)
141-1785	Receiving Sleeve Assembly	144.0 mm (5.67 in)	1140.0 mm (44.88 in)	68.0 mm (2.68 in)	146.0 mm (5.75 in)
9U-5340	Receiver Sleeve	125.0 mm (4.92 in)	300.0 mm (11.81 in)	Open end	138.6 mm (5.46 in)
9U-5266	Sleeve Assembly	125.0 mm (4.92 in)	415.0 mm (16.34 in)	35.0 mm (1.38 in)	138.6 mm (5.46 in)
6V-4035	Sleeve Assembly	125.0 mm (4.92 in)	250.0 mm (9.84 in)	35.0 mm (1.38 in)	118.57 mm (4.67 in)
5P-7288	Sleeve Assembly	106.0 mm (4.17 in)	419.0 mm (16.50 in)	32.5 mm (1.28 in)	95.0 mm (3.74 in)
8T-3198	Sleeve Assembly	42.5 mm (1.67 in)	190.0 mm (7.48 in)	17.5 mm (0.69 in)	28.0 mm (1.10 in)

Pin Driver Caps

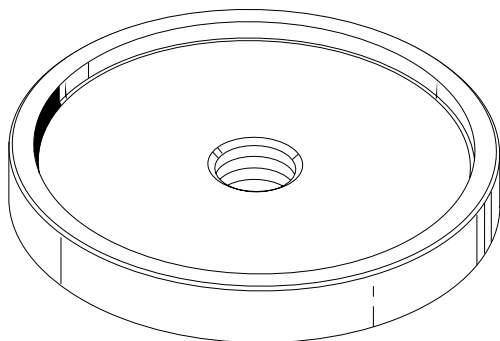


Part No.	Description	Thread Size	Head Diameter	Thread Length
9U-5342	Pin Driver Caps	M24 x 3.0	50.8 mm (2.00 in)	31.8 mm (1.25 in)
4C-9485	Pin Driver Caps	M30 x 3.5	63.5 mm (2.50 in)	29.5 mm (1.16 in)
9U-6225	Pin Driver Caps	M36 x 4.0	88.9 mm (3.50 in)	38.6 mm (1.52 in)
9U-6758	Pin Driver Caps	M48 x 5.0	101.6 mm (4.00 in)	51.6 mm (2.03 in)
9S-5561	Pin Driver Caps	1 1/2-12	88.9 mm (3.50 in)	35.8 mm (1.41 in)
9S-5562	Pin Driver Caps	1 1/4-12	63.5 mm (2.50 in)	29.5 mm (1.16 in)
9S-5563	Pin Driver Caps	1-14	50.8 mm (2.00 in)	23.1 mm (0.91 in)
276-8831	Pin Driver Caps	M30 x 3.5	63.5 mm (2.50 in)	51.1 mm (2.01 in)
276-8833	Pin Driver Caps	M36 x 4.0	88.9 mm (3.50 in)	58.5 mm (2.30 in)
276-8834	Pin Driver Caps	M48 x 5.0	101.6 mm (4.00 in)	71.5 mm (2.81 in)

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

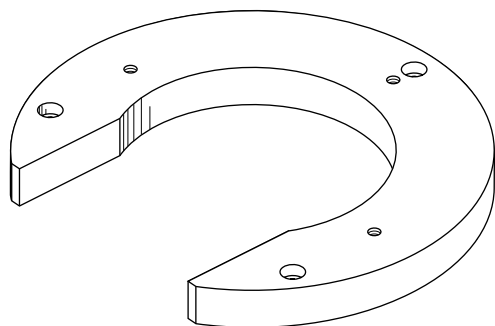
Vehicle System Tools

Adapter Plates



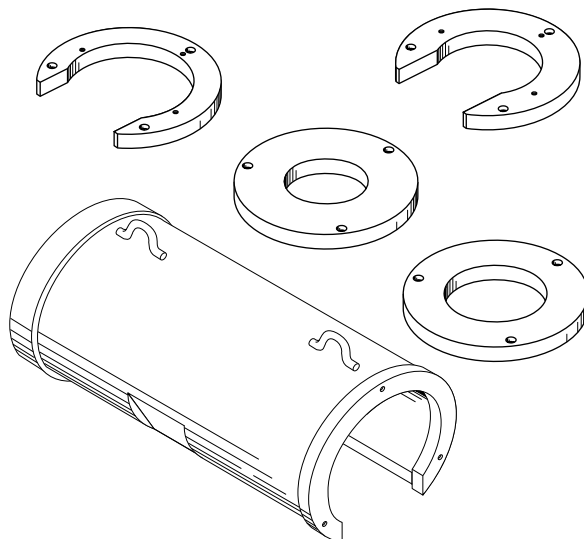
Part No.	Description	Maximum Pin Diameter
9U-6501	Adapter Plates	276.0 mm (10.87 in)
9U-6755	Adapter Plates	235.0 mm (9.25 in)
192-5512	Adapter Plates	202.0 mm (7.95 in)
192-5513	Adapter Plates	160.0 mm (6.30 in)
9U-6756	Adapter Plates	151.0 mm (5.94 in)
9U-5341	Adapter Plate Assembly	104.0 mm (4.09 in)
124-4637	Adapter Plates	102.0 mm (4.02 in)
9U-6226	Pin Puller Adapter	63.5 mm (2.50 in)

Adapter Flag Plates



Part No.	Description	Maximum Pin Diameter	Flag Clearance
192-5510	Adapter Plates	270.0 mm (10.63 in)	234.0 mm (9.21 in)
192-5511	Adapter Plates	225.0 mm (8.86 in)	203.0 mm (7.99 in)
9U-6757	Adapter Plates	196.0 mm (7.72 in)	164.0 mm (6.46 in)
9U-6754	Adapter Plates	187.0 mm (7.36 in)	130.0 mm (5.12 in)
1U-6150	Adapter Plates	156.0 mm (6.14 in)	130.0 mm (5.12 in)
162-7189	Adapter Plate Assembly	93.0 mm (3.66 in)	93.0 mm (3.66 in)

Receiving Sleeves with Adapters



Adapter Plate Part No.	Used with Receiving Sleeve Part No.
9U-6501	9U-7765
192-5513	155-8191
192-5511	FT2729, 155-8191
192-5510	FT2729, 155-8191
9U-5341	9U-5266
192-5512	155-8191
1U-6150	9U-6751, 9U-6752
9U-6757	9U-6751, 9U-6752
9U-6756	9U-6751, 9U-6752
9U-6755	9U-6751, 9U-6752
9U-6754	9U-6751, 9U-6752
124-4637	124-4640, 124-4641
161-1783	9U-6792
154-7387	9U-6751, 9U-6752
9U-6757	9U-6752

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

Implements, Frame, Hitch and Suspension

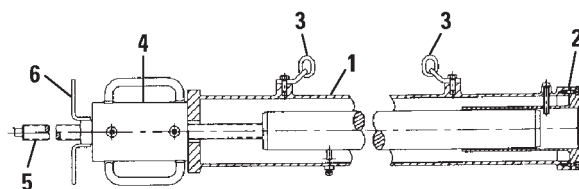
Linkage Pin and Bearing Removal Tools

SMCS Code: 6503, 6504, 6505, 6509-010

Model: 5110 Excavator

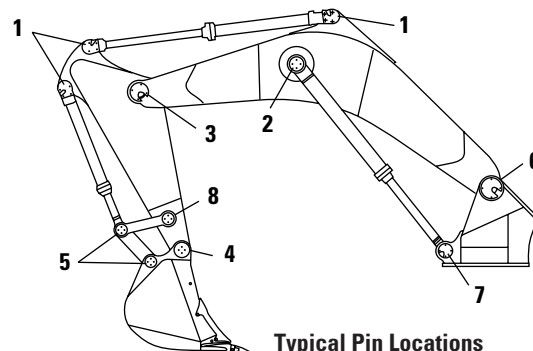
Warranty: Six Months

- Used to remove all linkage pins and bearings
- Used with general tooling listed in "General Tooling Used for All Pins"
- Receiving sleeve assembly is easily suspended with lifting link brackets (supplied with receiving sleeve)
- Only 1 receiving sleeve is required for this operation (sleeve is adapted for other pin diameters by using appropriate receiving sleeve adapter assembly)



Typical Receiving Sleeve Usage

Item	Part No.	Description
1	134-8466	Receiving Sleeve Assembly
2	—	Receiving Sleeve Adapter Assembly
3	—	Linkage Pin
4	316-1491	Hydraulic Cylinder (100 ton)
5	136-5747	Stud Puller (M48)
6	9U-6810	Fast Runner Nut (M48)



Typical Pin Locations

Item	Description
1	Cylinder pin
2	Cylinder pin
3	Stick-to-Boom Pin
4	Bucket Pin
5	Bucket Linkage Pin
6	Boom-to-Swing Frame Pin
7	Cylinder Pin
8	Bucket Linkage Pin

Pin Specific Tooling	
Pin No. 1	
1U-6202	Pin Puller Assembly
9U-6814	Puller Stud
9U-6810	Fast Runner Nut (M48)
316-1491	Hydraulic Cylinder (100 ton)
Pin No. 2	
134-8466	Receiving Sleeve Assembly
134-8470	Receiving Sleeve Adapter Assembly
4C-8150	Threaded Rod (M64)
9U-6800	Fast Runner Nut (M64)
—	Hydraulic Cylinder (150 ton)
Pin No. 3	
134-8466	Receiving Sleeve Assembly
4C-8150	Threaded Rod (M64)
9U-6800	Fast Runner Nut (M64)
—	Hydraulic Cylinder (150 ton)

Pin No. 4	
134-8466	Receiving Sleeve Assembly
134-8471	Receiving Sleeve Adapter Assembly
4C-8150	Threaded Rod (M64)
9U-6800	Fast Runner Nut (M64)
—	Hydraulic Cylinder (150 ton)
Pin No. 5	
134-8466	Receiving Sleeve Assembly
136-5747	Stud Puller (M48)
9U-6810	Fast Runner Nut (M48)
316-1491	Hydraulic Cylinder (100 ton)

Pin No. 6	
1U-6202	Pin Puller Assembly
4C-8150	Threaded Rod (M64)
9U-6800	Fast Runner Nut (M64)
—	Hydraulic Cylinder (150 ton)
Pin No. 7	
1U-6202	Pin Puller Assembly
9U-6814	Puller Stud
136-5747	Stud Puller (M48)
9U-6810	Fast Runner Nut (M48)
316-1491	Hydraulic Cylinder (100 ton)
Pin No. 8	
134-8466	Receiving Sleeve Assembly
136-5747	Stud Puller (M48)
9U-6810	Fast Runner Nut (M48)
316-1491	Hydraulic Cylinder (100 ton)

Part No.	Description	Maximum Pin Diameter	Maximum Pin Length	Maximum Rod Diameter	Maximum Capacity	Thread Size	Length	Use
134-8466	Receiving Sleeve Assembly	200 mm (7.9 in)	1322 mm (52.0 in)	64 mm (2.5 in)	136 t (150 ton)	—	—	As a receiving sleeve for all long pins on vehicle. By itself for boom-to-stick pin
134-8470	Receiving Sleeve Adapter Assembly	160 mm (6.3 in)	—	—	136 t (150 ton)	—	—	With 134-8466 to accept a 160 mm (6.3 in) diameter pin
134-8471	Receiving Sleeve Adapter Assembly	170 mm (6.7 in)	—	—	136 t (150 ton)	—	—	With 134-8466 to accept a 170 mm (6.7 in) diameter pin
136-5747	Puller Stud (M48)	—	—	—	—	M48 x 5	2415 mm (8 ft)	—

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Adapter Plate and Receiving Sleeve Assembly

SMCS Code: 6503, 6504, 6505, and 6509-010

Model: 5110B Excavator

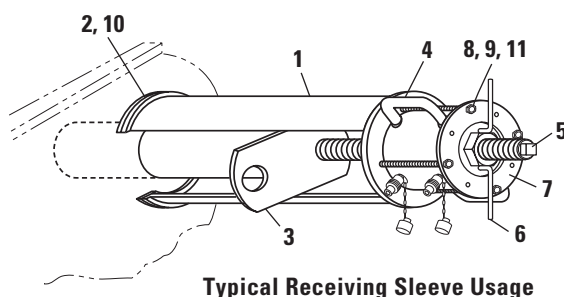
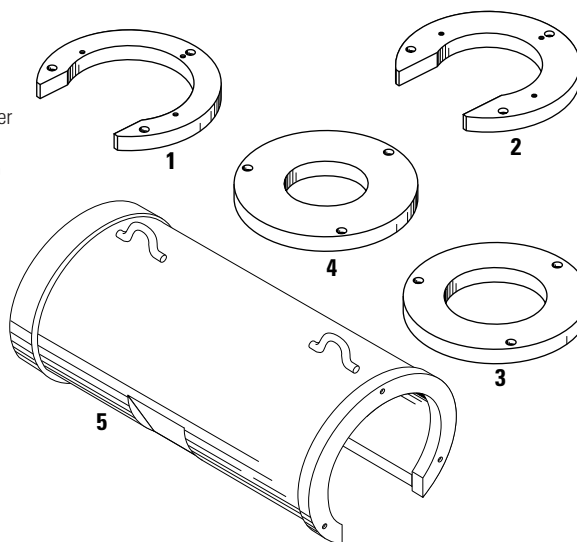
Essential Tool

Warranty: Six Months

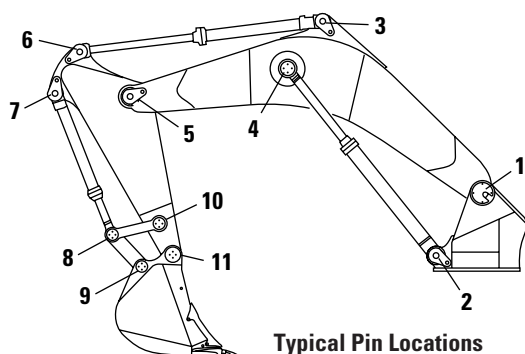
- Used to remove boom to frame pin, stick to boom pin, bucket to stick pin, and all related hydraulic cylinder mounting pins
- Adapter plates attach to FT2729 and 155-8191 Receiving Sleeves allowing the removal of smaller diameter linkage pins with larger diameter receiving sleeves, thus eliminating the need for many additional sleeves.
- Used with 3S-6224 Hydraulic Pump (115 VAC) or 8S-8033 Hydraulic Pump (230 VAC) and 6D-7726 Hydraulic Hose

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Item	Part No.	Description	Maximum Pin Diameter	Maximum Capacity
1	192-5510	Adapter Plate	260 mm (10.2 in)	150 tons
2	192-5511	Adapter Plate	210 mm (8.3 in)	150 tons
3	192-5512	Adapter Plate	192 mm (5.9 in)	150 tons
4	192-5513	Adapter Plate	150 mm (5.9 in)	150 tons
5	FT2729	Receiving Sleeve	—	150 ton



Item	Description
1	Receiving Sleeve Assembly
2	Adapter Plate
3	Linkage Pin
4	Hydraulic Cylinder
5	Puller Stud
6	Fast Runner Nut
7	Retaining Plate
8	Rod
9	Nut
10	Socket Head Bolt
11	Washer



Typical Pin Locations

Pin Specific Tooling		
Part No.	Description	Qty.
Pin No. 1		
FT2729	Receiving Sleeve	1
192-5511	Adapter Plate	1
8T-0271	Cap Screw (M10 x 1.5)	3
—	Cylinder Group (150 Ton)	1
4C-8152	Retaining Plate	1
9T-2240	Threaded Rod (M10)	4
8T-4121	Washer (M10)	4
8T-4133	Nut (M10)	4
9U-6800	Runner Nut (M64)	1

Pin No. 2		
FT2729	Receiving Sleeve	1
192-5511	Adapter Plate	1
8T-0271	Cap Screw (M10 x 1.5)	3
316-1491	Cylinder Group (100 Ton)	1
4C-8152	Retaining Plate	1
9T-2240	Threaded Rod (M10)	4
8T-4121	Washer (M10)	4
8T-4133	Nut (M10)	4
9U-6815	Puller Stud (M48)	1
9U-6903	Runner Nut (M48)	1
Pin No. 3		
FT2729	Receiving Sleeve	1
192-5510	Adapter Plate	1
8T-0271	Cap Screw (M10 x 1.5)	3
316-1491	Cylinder Group (100 ton)	1
4C-8152	Retaining Plate	1
9T-2240	Threaded Rod (M10)	4
8T-4121	Washer (M10)	4
8T-4133	Nut (M10)	4
9U-6815	Puller Stud (M48)	1
9U-6903	Runner Nut (M48)	1

*This article has changed
since the printing of the 2009
Dealer Service Tools Catalog.*

Pin No. 6		
FT2729	Receiving Sleeve	1
192-5510	Adapter Plate	1
8T-0271	Cap Screw (M10 x 1.5)	3
316-1491	Cylinder Group (100 ton)	1
4C-8152	Retaining Plate	1
9T-2240	Threaded Rod (M10)	4
8T-4121	Washer (M10)	4
8T-4133	Nut (M10)	4
9U-6815	Puller Stud (M48)	1
9U-6903	Runner Nut (M48)	1
Pin No. 7		
FT2729	Receiving Sleeve	1
192-5510	Adapter Plate	1
8T-0271	Cap Screw (M10 x 1.5)	3
316-1491	Cylinder Group (100 ton)	1
4C-8152	Retaining Plate	1
9T-2240	Threaded Rod (M10)	4
8T-4121	Washer (M10)	4
8T-4133	Nut (M10)	4
9U-6815	Puller Stud (M48)	1
9U-6903	Runner Nut (M48)	1

Pin No. 4		
155-8191	Receiving Sleeve	1
192-5511	Adapter Plate	1
8T-0271	Cap Screw (M10 x 1.5)	3
—	Cylinder Group (150 ton)	1
4C-8152	Retaining Plate	1
9T-2240	Threaded Rod (M10)	4
8T-4121	Washer (M10)	4
8T-4133	Nut (M10)	4
9U-6702	Puller Stud (M64)	1
9U-6800	Runner Nut (M64)	1

Pin No. 8		
155-8191	Receiving Sleeve	1
192-5512	Adapter Plate	1
8T-0271	Cap Screw (M10 x 1.5)	3
—	Cylinder Group (150 ton)	1
4C-8152	Retaining Plate	1
9T-2240	Threaded Rod (M10)	4
8T-4121	Washer (M10)	4
8T-4133	Nut (M10)	4
9U-6702	Puller Stud (M64)	1
9U-6800	Runner Nut (M64)	1

Pin No. 9		
155-8191	Receiving Sleeve	1
192-5513	Adapter Plate	1
8T-0271	Cap Screw (M10 x 1.5)	3
—	Cylinder Group (150 Ton)	1
4C-8152	Retaining Plate	1
9T-2240	Threaded Rod (M10)	4
8T-4121	Washer (M10)	4
8T-4133	Nut (M10)	4
9U-6702	Puller Stud (M64)	1
9U-6800	Runner Nut (M64)	1

Pin No. 5		
155-8191	Receiving Sleeve	1
192-5510	Adapter Plate	1
8T-0271	Cap Screw (M10 x 1.5)	3
—	Cylinder Group (150 ton)	1
4C-8152	Retaining Plate	1
9T-2240	Threaded Rod (M10)	4
8T-4121	Washer (M10)	4
8T-4133	Nut (M10)	4
9U-6702	Puller Stud (M64)	1
9U-6800	Runner Nut (M64)	1

Pin No. 10		
155-8191	Receiving Sleeve	1
192-5513	Adapter Plate	1
8T-0271	Cap Screw (M10 x 1.5)	3
316-1491	Cylinder Group (100 Ton)	1
4C-8152	Retaining Plate	1
9T-2240	Threaded Rod (M10)	4
8T-4121	Washer (M10)	4
8T-4133	Nut (M10)	4
136-5747	Puller Stud (M48)	1
9U-6903	Runner Nut (M48)	1
Pin No. 11		
155-8191	Receiving Sleeve	1
192-5512	Adapter Plate	1
8T-0271	Cap Screw (M10 x 1.5)	3
—	Cylinder Group (150 Ton)	1
4C-8152	Retaining Plate	1
9T-2240	Threaded Rod (M10)	4
8T-4121	Washer (M10)	4
8T-4133	Nut (M10)	4
9U-6702	Puller Stud (M64)	1
9U-6800	Runner Nut (M64)	1

Bearing Puller Adapters and Installer Plates

SMCS Code: 7551-010

Model: 5110B Excavator

Essential Tool

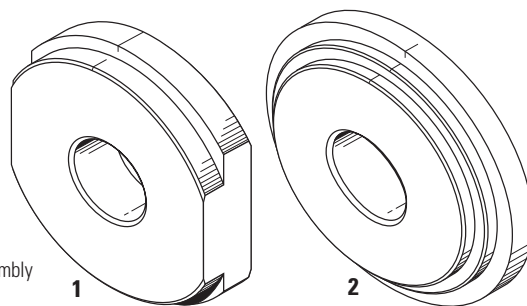
Warranty: Six Months

- Used to remove and install sleeve bearings from excavator linkage
- Used with 3S-6224 Hydraulic Pump (115 VAC), 8S-8033 Hydraulic Pump (230 VAC), or (9U-6600) Hydraulic Hand Pump
- Also requires a 6D-7726 Hose Assembly
- Designed to install bearings to proper depth without measuring
- Complete range of tools are available to service each linkage location

Reference

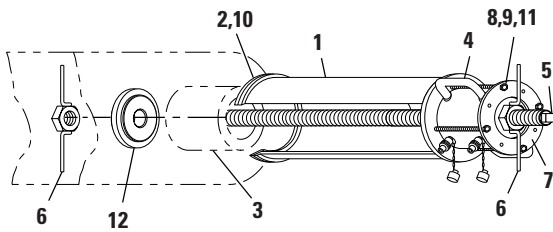
REN3371, Service Manual, 5110B Excavator Machine Systems Disassembly and Assembly

*This article has changed
since the printing of the 2009
Dealer Service Tools Catalog.*



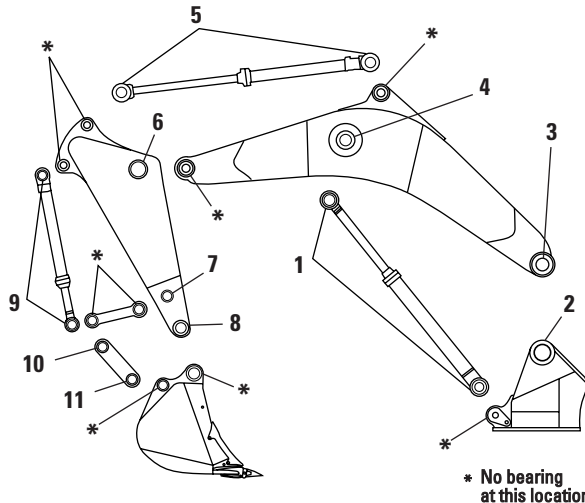
Item	Part No.	Description	Bearing ID	Bearing OD	Bearing Installation Depth	Maximum Capacity
1	197-6681	Bearing Puller Adapter	200.0 mm (7.87 in)	225.0 mm (8.86 in)	—	150 tons
	197-6682	Bearing Puller Adapter	170.0 mm (6.69 in)	195.0 mm (7.68 in)	—	150 tons
	197-6683	Bearing Puller Adapter	150.0 mm (5.90 in)	170.0 mm (6.69 in)	—	150 tons
2	197-6684	Bearing Puller Adapter	120.0 mm (4.72 in)	140.0 mm (5.51 in)	—	150 tons
	197-6685	Bearing Installer Plate				
		Side 1	180.0 mm (7.08 in)	—	10.0 mm (0.39 in)	—
		Side 2	180.0 mm (7.08 in)	—	Flush	—
	197-6686	Bearing Installer Plate				
		Side 1	120.0 mm (4.72 in)	—	10.0 mm (0.39 in)	—
		Side 2	170.0 mm (6.69 in)	—	10.0 mm (0.39 in)	—
	197-6687	Bearing Installer Plate				
		Side 1	150.0 mm (5.90 in)	—	10.0 mm (0.39 in)	—
		Side 2	200.0 mm (7.87 in)	—	10.0 mm (0.39 in)	—

Vehicle System Tools



Typical Removal and Installation Tooling

Refer to "Pin Specific Tooling" for Part Numbers			
Item	Description	Item	Description
1	Receiving Sleeve Assembly	8	Rod
2	Adapter Plate	9	Nut
3	Sleeve Bearing	10	Socket Head Bolt
4	Hydraulic Cylinder	11	Washer
5	Puller Stud	12	Bearing Puller Adapter or Bearing Installer Plate
6	Fast Runner Nut		
7	Retaining Plate		



Linkage bearing locations

Removal Tooling		
Part No.	Description	Qty.
Bearing No. 1, 5, and 9		
137-8792	Receiving Sleeve	1
—	Cylinder Group (150 Ton)	1
4C-8152	Retaining Plate	1
9T-2240	Threaded Rod (M10)	4
8T-4121	Washer (M10)	4
8T-4133	Nut (M10)	4
9U-6800	Runner Nut (M64)	2
138-1135	Bearing Puller Plate	1
Bearing No. 2, 3, and 6		
137-8792	Receiving Sleeve	1
—	Cylinder Group (150 Ton)	1
4C-8152	Retaining Plate	1
9T-2240	Threaded Rod (M10)	4
8T-4121	Washer (M10)	4
8T-4133	Nut (M10)	4
9U-6800	Runner Nut (M64)	2
197-6681	Bearing Puller Adapter	1
Bearing No. 4		
9U-6751	Receiving Sleeve	1
316-1491	Cylinder Group (100 Ton)	1
9U-6753	Retaining Plate	1
9T-2240	Threaded Rod (M10)	4
8T-4121	Washer (M10)	4
8T-4133	Nut (M10)	4
9U-6815	Puller Stud (M48) 62 in	1
9U-6903	Runner Nut (M48)	1
197-6681	Bearing Puller Adapter	1

Bearing No. 7		
137-8792	Receiving Sleeve	1
—	Cylinder Group (150 Ton)	1
4C-8152	Retaining Plate	1
9T-2240	Threaded Rod (M10)	4
8T-4121	Washer (M10)	4
8T-4133	Nut (M10)	4
9U-6800	Runner Nut (M64)	2
197-6684	Bearing Puller Adapter	1
Bearing No. 8		
137-8792	Receiving Sleeve	1
—	Cylinder Group (150 ton)	1
4C-8152	Retaining Plate	1
9T-2240	Threaded Rod (M10)	4
8T-4121	Washer (M10)	4
8T-4133	Nut (M10)	4
9U-6800	Runner Nut (M64)	2
197-6682	Bearing Puller Adapter	1
Bearing No. 10		
137-8792	Receiving Sleeve	1
—	Cylinder Group (150 ton)	1
4C-8152	Retaining Plate	1
9T-2240	Threaded Rod (M10)	4
8T-4121	Washer (M10)	4
8T-4133	Nut (M10)	4
9U-6800	Runner Nut (M64)	2
138-1135	Bearing Puller Plate	1
Bearing No. 11		
9U-6751	Receiving Sleeve	1
316-1491	Cylinder Group (100 ton)	1
9U-6753	Retaining Plate	1
9T-2240	Threaded Rod (M10)	4
8T-4121	Washer (M10)	4
8T-4133	Nut (M10)	4
9U-6815	Puller Stud (M48) 62 in	1
9U-6903	Runner Nut (M48)	2
197-6683	Bearing Puller Adapter	1

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

Implements, Frame, Hitch and Suspension

Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and AssemblyMotor Grader Controls,
Cable Control and WinchLoader Lift Arm and
Excavator ImplementImplements, Frame,
Hitch and Suspension

Installation Tooling					
Part No.	Description	Qty.	Bearing No. 6		
Bearing No. 1, 5, 9, and 10			—	Cylinder Group (150 ton)	1
—	Cylinder Group (150 ton)	1	4C-8150	Puller Stud (M64) 72 in	1
4C-6504	Puller Stud (M64) 48 in	1	9U-6800	Runner Nut (M64)	2
9U-6800	Runner Nut (M64)	2	197-6687	Bearing Installer Plate	2
138-1135	Bearing Puller Plate	1	Bearing No. 7 and 8		
197-6685	Bearing Installer Plate	1	—	Cylinder Group (150 ton)	1
Bearing No. 2 and 3			4C-8150	Puller Stud (M64) 72 in	1
—	Cylinder Group (150 ton)	1	9U-6800	Runner Nut (M64)	2
9U-6800	Runner Nut (M64)	2	197-6686	Bearing Installer Plate	2
197-6681	Bearing Puller Adapter	1	Bearing No. 11		
197-6687	Bearing Installer Plate	1	—	Cylinder Group (150 Ton)	1
Bearing No. 4			4C-8150	Puller Stud (M64) 72 in	1
—	Cylinder Group (150 ton)	1	9U-6800	Runner Nut (M64)	2
4C-8150	Puller Stud (M64) 72 in	1	197-6687	Bearing Installer Plate	1
9U-6800	Runner Nut (M64)	2			
197-6685	Bearing Installer Plate	2			

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Bearing Removal Adapters

SMCS Code: 7100-017
Model: 772 Coal Hauler
Warranty: None

- Used for hitch disassembly and assembly operations

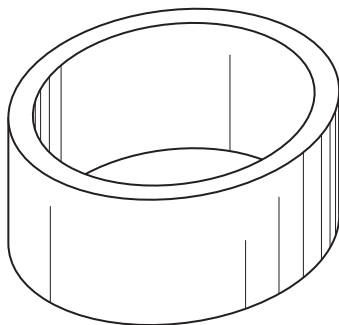
Item	Part No.	Description	Use
1	FT1306	Adapter	Used for removal of hitch pivot pins
2	FT1307	Adapter	Used for removal and installation of 4D-6611 Bearings for horizontal and vertical pivot pins in hitch



FT1715 Sleeve

SMCS Code: 7206-010
Model: D10 Tractor
Warranty: None

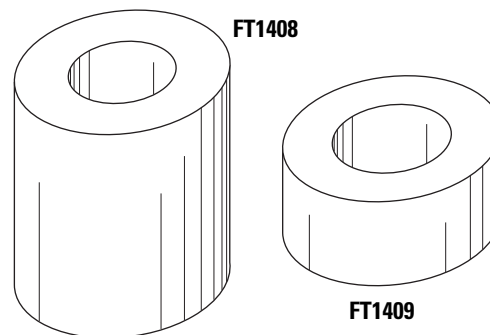
- Used with hydraulic press and other tools for removing equalizer bar center pins



Spacers

SMCS Code: 7206-012
Model: D10 Tractor
Warranty: None

- Used for installing equalizer bar end pin
- FT1409 Spacer also used for track roller frame removal and installation



FT1390 Lifting Bracket

SMCS Code: 7156-508
Model: 992C Wheel Loader
Warranty: None

- Used to lift rear bumper (2 required)
- Especially required to install bumper if vehicle is delivered via truck shipment
- Two 1 inch-8 UNC bolts needed for attaching brackets
- Large drawing available



2G-2827 Block Assemblies

SMCS Code: 6200-029, 7107-012
Model: 621B, 623B, 627B, 631D, 633D and 637D Tractors
Warranty: Six Months

- Used for supporting hitch when separating tractor from scraper
- Two blocks required, one for each hitch stop on tractor differential case
- Blocks tapped for 3/4 inch-10 bolts which are adjusted out against hitch to support it firmly



FT3058 Support Block

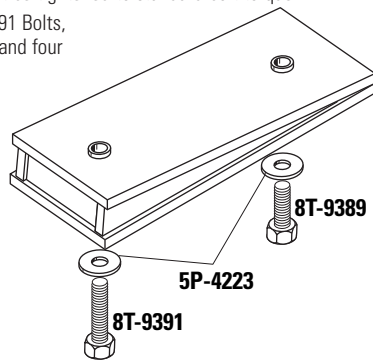
SMCS Code: 6200-029
Model: 657G Wheel Tractor Scraper
Warranty: None

NEW TOOL

- Used to provide a level lifting surface on angular main frame rails
- Used with 9U-7489 100 Ton Lift Stands
- Mounting bolts must be tightened to standard bolt torque
- Requires two 8T-9391 Bolts, two 8T-9389 Bolts, and four 5P-4223 Washers

Reference

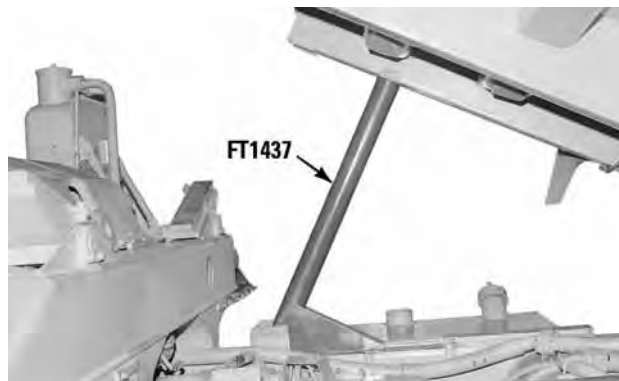
REN9714,
Service Manual,
657G Disassembly
and Assembly



FT1437 Body Support

SMCS Code: 7258-009
Model: 769C Truck
Warranty: None

- Used to support truck body when service work with the body raised is required, such as setting transmission shift points
- Very useful in shops where there is limited overhead clearance and it is not possible to fully raise the body
- Bolted to one of the frame members in place of front body pad which must be removed

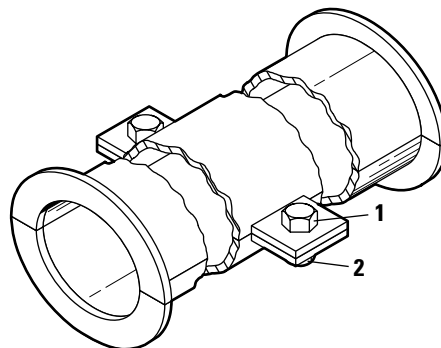


FT2684 Cylinder Support Assembly

SMCS Code: 5050-010
Model: All Telehandler Models

- Used to secure telehandler main lift cylinder in a raised position
- Safely supports main boom for display purposes only
- Do not use for routine maintenance or machine servicing
- Steel (all parts): SAE 1020
- Paint color: safety red

Item	Part No.	Description
1	4F-8965	Bolt
2	7X-0447	Nut



Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and Assembly

Motor Grader Controls,
Cable Control and Winch

Loader Lift Arm and
Excavator Implement

Implements, Frame,
Hitch and Suspension

245-9130 Support Stand Assembly

SMCS Code: 5104, 7062

Model: TK722 (TKC1-UP and 1031-UP); TK732 (T1041-UP); TK752 (3021-UP) Track Feller Buncher

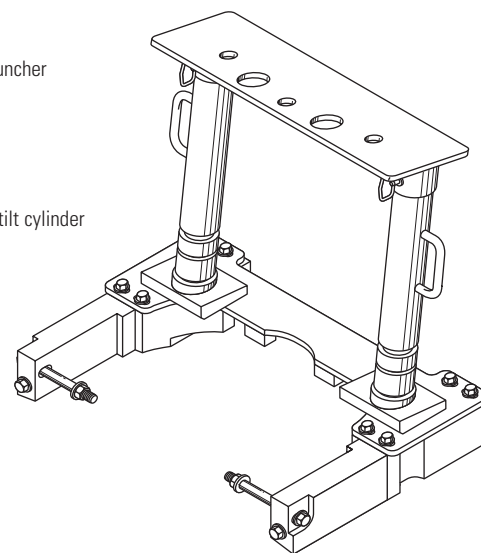
Essential Tool

Warranty: Six Months

NEW TOOL

- Used to support upper structure of machine during removal and installation of forward tilt cylinder

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.



Strut Adapters

SMCS Code: 7201-017

Model: See below

Warranty: None

- Used with 1P-1784 Hydraulic Cylinder Repair Stand for disassembly and assembly of front suspension cylinders
- Bolt to end of rod assembly and secure rod to end post of repair stand
- FT1330 Adapter also modified so that it can be attached to piston and aid in its removal

Part No.	Model
FT2761	777 Trucks and 776 Tractors
FT1330	769, 773 Trucks and 768, 772 Tractors



FT1330



FT2761

994 Main Frame Assembly Tools

SMCS Code: 7051-777

Model: 994 Wheel Loader

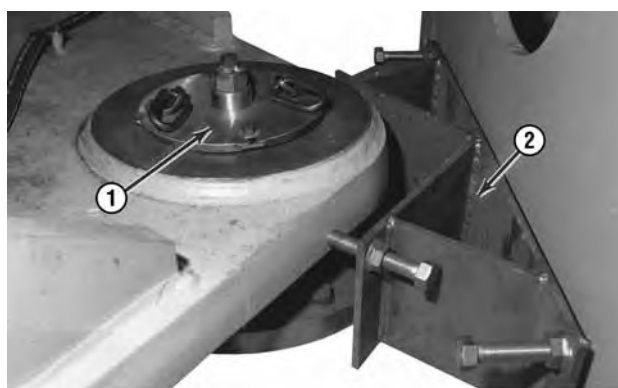
Warranty: Six Months

- Used in assembly of 994 Wheel Loader main frames
- Align and hold 994 center hitch pin bores prior to pin installation
- Bore alignment very important but difficult because of large pin size, close tolerances, mass of 2 loader frames, speed required to install cold (shrunk) pins before they warm and expand

Reference

SEHS9272, Special Instruction, 994 Field Assembly Instructions

SENR4755, Service Manual, 994 Vehicle Systems Disassembly and Assembly Module



Item	Part No.	Description	Dimensions	Weight
1	9U-5234	Collet Assembly	236 mm (9.3 in) diameter 670 mm (26.4 in) long	89 kg (196 lb)
2	9U-5235	Fixture Assembly	750 x 174 x 178 mm (29.5 x 6.9 x 7 in)	22.7 kg (50 lb)

994 Hitch Pin Pulling Tools

SMCS Code: 7051-776, 777

Model: 994 Wheel Loader

Warranty: Six Months

- Used to pull hitch pin or pull any pin with a 2 inch-12 puller hole — saves time and eliminates destruction of pin
- Used with 316-1490 Cylinder and 8T-7781 Nut
- Hydraulic removal of pin is preferred over other methods, such as burning, cutting, or drilling
- 2 inch stud provides a maximum 1335 kN (150 tons) hydraulic pulling force
- 38.1 mm (1½ in) stud provides a maximum 890 kN (100 tons) of hydraulic pulling force
- Most 994 hitch pin pulling operations require the maximum force provided by these tools

9U-7763 Puller Stud

- Rolled threads and heat treatment for added strength
- Provides pulling capacity up to 1335 kN (150 tons)
- Course threads, on cylinder end of stud, provide for faster nut running during pulling

9U-7764 Bushing

- Used to reduce 63.5 mm (2.5 in) center hole of cylinder to 51 mm (2.0 in) diameter for 9U-7763 Stud
- Heat treated for additional strength

9U-6489 Eyebolt (with shoulder)

- Provides quick and convenient lifting point
- Used for general lifting applications of 14,755 kg (32,500 lb) or less [upper hitch pin weighs 116 kg (255 lb) and lower hitch pin 185 kg (407 lb)]

9U-6501 Plate

- Provides a base for discontinued 316-1490 Cylinder
- Heat treated to Rockwell C32-38
- 2-step diameter centers plate on end of different ID receiving sleeves

FT2432 Aligning Wrench

- Used to align lower hitch pin to bottom plate and frame holes
- Wrench is bolted to pin allowing rotation to align pin, frame, and locking plate holes

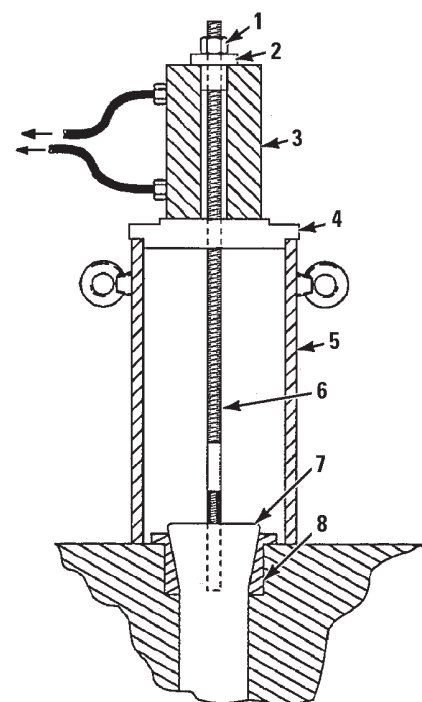
9U-6698 Puller Stud

- Used for any general pulling application requiring 1½ inch-12 threads
- Rolled threads and heat treatment for added strength
- Provides pulling capacity up to 890 kN (100 tons)

References

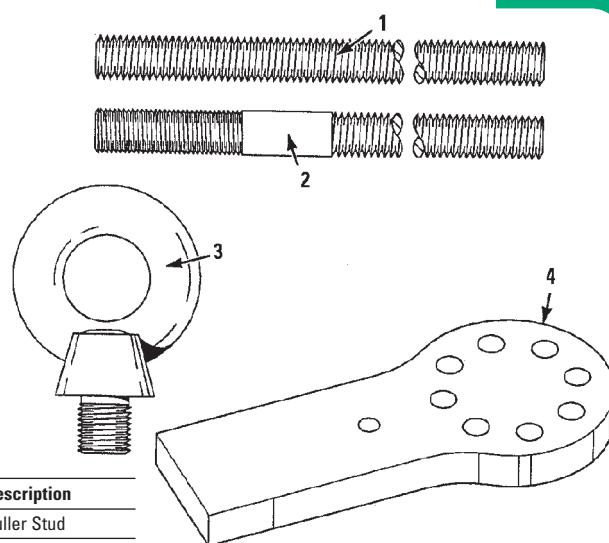
SEN4755, Disassembly and Assembly, 994 Wheel Loader Vehicle Systems

Procedure for 994 Front Frame Replacement from Decatur Mining Vehicle Center (M.V.C.)



Part No.	Description
8T-7781	Nut
9U-7764	Bushing
—	Cylinder
9U-6501	Plate
9U-7765	Receiving Sleeve
9U-7763	Puller Stud
	Hitch Pin
	Hitch Pin Bushing

Item	Part No.	Description
1	9U-6698	Puller Stud
2	9U-7763	Puller Stud
3	9U-6489	Shoulder Eye Bolt
4	FT2432	Aligning Wrench



This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

9U-6489 Shoulder Eyebolt	
Thread	2 in-12 thd
Length from bottom of shoulder to end of thread	51 mm (2.0 in)
Capacity	14,755 kg (32,500 lb)
Eye diameter	82.6 mm (3.25 in)
9U-6501 Plate	
Overall diameter	305 mm (12.0 in)
Thickness	38 mm (1.5 in)
Center hole diameter	53 mm (2.1 in)
Heat treatment	Rockwell C32-38
Large step diameter	276 mm (10.9 in)
Small step diameter	201.5 mm (7.93 in)
Rated Pulling Capacity	1335 kN (150 tons)
9U-6698 Puller Stud	
Threads	1½ in-12 thd (rolled)
Thread length	1220 mm (48.0 in)
Pulling capacity (force)	890 kN (100 tons)
Heat treatment	Rockwell C41-45
9U-7763 Puller Stud	
Overall length	1220 mm (48.0 in)
Short end thread	2 in-12 thd (rolled)
Length	101 mm (4.0 in)
Long end thread	2 in-8 (rolled)
Length	1016 mm (40.0 in)
Heat treatment	Rockwell C41-45
Pulling capacity (force)	1335 kN (150 tons)
9U-7764 Bushing	
Outside diameter	62.0 mm (2.44 in)
Inside diameter	52.3 mm (2.06 in)
9U-7765 Receiving Sleeve	
Outside diameter	305 mm (12.0 in)
Inside diameter	285 mm (11.2 in)
Overall length	762 mm (30.0 in)
Lifting eyes	2
Rated pulling capacity	1335 kN (150 tons)

Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

Implements, Frame, Hitch and Suspension

990 Articulation Hitch Pin Pulling Tools

SMCS Code: 7051-776, 7051-777

Model: 990 Wheel Loader

Warranty: Six Months

*This article has changed
since the printing of the 2009
Dealer Service Tools Catalog.*

- Used to pull articulation hitch pins and bearings — saves time and eliminates damage to pin
- Used with 316-1491 or **discontinued** 6V-0014 Cylinder and 9U-6810 Speed Nut
- Hydraulic removal of pin is preferred over other methods, such as burning, cutting, or drilling
- M48 threads provide a maximum of 890 kN (100 tons) of hydraulic pulling force
- All plates and sleeves serviced separately

124-4637 Adapter Plate

- Used to remove 4E-8152 Top Hitch Pin on early 990's (no puller hole for removing the pin hydraulically)
- Later models, with pin puller hole, do not require this adapter plate

124-4638 Bearing Puller Plate

- Used to remove the top articulation hitch pin bearing

124-4639 Bearing Puller Plate

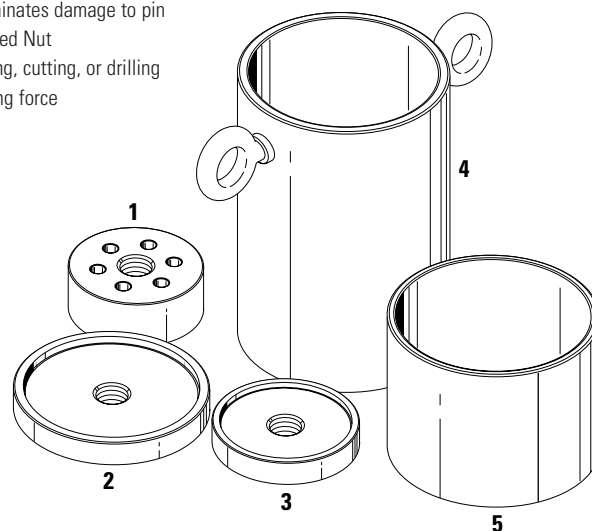
- Used to remove the bottom articulation hitch pin bearing

124-4640 Receiving Sleeve Assembly

- Used to remove the top and bottom articulation hitch pins

124-4641 Receiving Sleeve

- Used to remove the top and bottom articulation hitch pin bearings



Item	Part No.	Description	Recess Diameter	Inside Diameter	Overall Diameter	Outside Diameter	Thickness	Puller Hole Thread	Rated Capacity	Lifting Eyes	Overall Length
1	124-4637	Adapter Plate	—	—	177.8 mm (7.00 in)	—	76.2 mm (3.00 in)	M48 X 5	890 kN (100 tons)	—	—
2	124-4638	Bearing Puller Plate (upper bearing)	214 mm (8.43 in)	—	251 mm (9.88 in)	—	38 mm (1.5 in)	M48 X 5	—	—	—
3	124-4639	Bearing Puller Plate (lower bearing)	174.0 mm (6.85 in)	—	193.5 mm (7.62 in)	—	38 mm (1.5 in)	M48 X 5	—	—	—
4	124-4640	Receiving Sleeve Assembly (pin removal)	—	254 mm (10.0 in)	—	279.4 mm (11.00 in)	—	—	890 kN (100 tons)	2	450 mm (17.7 in)
5	124-4641	Receiving Sleeve (bearing removal)	—	265.0 mm (10.43 in)	—	279.4 mm (11.00 in)	—	—	890 kN (100 tons)	—	216 mm (8.5 in)

218-4529 Bearing Puller Plate

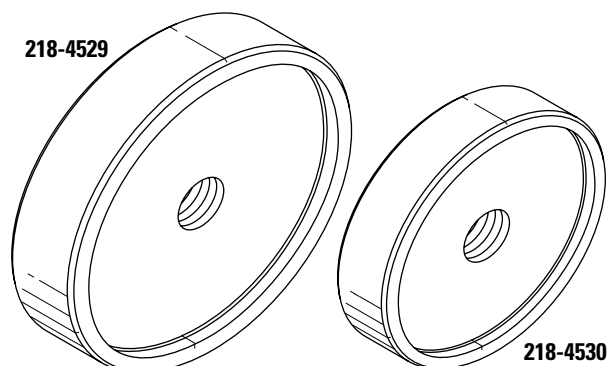
218-4530 Bearing Puller Plate

SMCS Code: 7054, 7117, 7551-011

Model: 950G and 962G Series I and II Wheel Loaders; IT62G Series I and II Integrated Toolcarrier

Warranty: Six Months

- Used to remove both bearing cups and cones from lower and upper hitch articulation joints
- Used with 6V-3160 Double Acting Hydraulic Cylinder and 9U-5345 Fast Runner Nut Assembly (M24 x 3.0)
- Use 218-4529 for lower hitch articulation joint and 218-4530 for upper joint
- Hydraulic removal of bearings is preferred over other methods, such as burning, cutting, or drilling



Threaded hole	M24 x 3.0
Maximum pulling force	267 kN (30 tons)
Outside diameter (218-4529)	136.0 mm (5.35 in)
Outside diameter (218-4530)	106.0 mm (4.17 in)

Hitch Bearing Installation Tools

SMCS Code: 7057, 7117, 7551

Model: 515, 525, 525B, 533, 535B, 543, and 545 Wheel Skidder
TK370, TK371, TK 380, and TK381 Wheel Feller Buncher
966G and 972G Wheel Loader

Essential Tool

Warranty: None

- Used to install hitch bearings to proper depth

FT3004 Bearing Driver

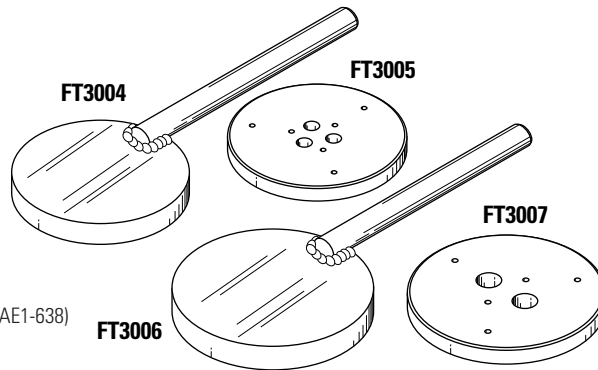
FT3005 Measuring Plate

- Used on 515 (4LR1-Up), 525 (1DN1-Up), 525B (3KZ1-1151), and 535B (AAE1-638)

FT3006 Bearing Driver

FT3007 Measuring Plate

- Used on 525B (3KZ1152-Up) 533 (CDR1-Up), 535B (AAE639-Up), 543 (ASJ1-Up), 545 (2FZ1-Up), TK370 (WBD1-Up), TK371 (WBG1-Up), TK380 (WBE1-Up), TK381 (WBH1-Up), 966G and 972G



References

REN6693; Disassembly and Assembly; 515 and 525 Wheel Skidder Machine Systems

REN4344; Disassembly and Assembly; 525B and 535B Wheel Skidder Machine Systems

REN3054; Disassembly and Assembly; 545 Wheel Skidder Machine Systems

REN6168; Disassembly and Assembly; 533 and 543 Wheel Feller Buncher Machine Systems

REN6240; Disassembly and Assembly; TK370, TK371, TK380, and TK381 Wheel Feller Buncher Machine Systems

Tools for Tightening Horizontal Hitch Pins

SMCS Code: 7100-010

Model: 631, 633, 637, 641, 651, 657, 660 and 666 Tractor-Scrapers

Warranty: Six Months

- Used with 2P-8285 Arm, 2P-8286 Drive Adapter, 7S-4135 Torque Multiplier, 2P-0853 Ratchet Adapter, and 9S-7351 Torque Wrench to remove and install horizontal hitch pins
- 5P-1663 Extension Wrench discontinued and replaced by 5P-1661 Wrench

Item	Part No.	Description	Size
1	5P-1661	Sledge Wrench	4¼ in
2	5P-1662	Socket	4¼ in



Puller Plates

SMCS Code: 7200-010

Model: See below

Warranty: Six Months

- Used with hydraulic cylinder of 55 tons or less capacity to remove tubes and glands in truck front suspension groups

Reference

Service Magazine, January 19, 1981



Part No.	Model
6V-3141	776 Tractors and 777 Trucks
6V-3142	768 and 772 Tractors and 769 and 773 Trucks

Front Suspension Forcing Plates

SMCS Code: 7051-076

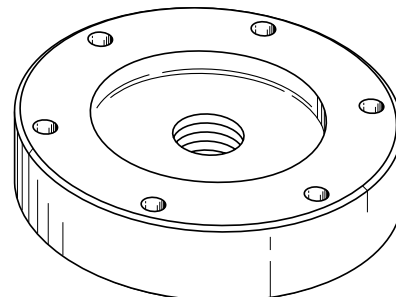
Model: 735 and 740 Articulated Trucks

Warranty: Six Months

- Used to separate front suspension "A-frame" from main frame assembly at lower hitch pin
- Used with 5P-5264 Forcing Bolt (sold separately)
- Reduces damage to front suspension and main frame/hitch pin
- Precision machined and heat-treated for long durability
- Threaded hole: 1½-12

Reference

REN5140, Service Manual, Front Suspension Remove and Install, Disassembly and Assembly Machine Systems



Part No.	Description	Used on	Serial No.
217-5919	Forcing Plate	older 735 and 740 Articulated Trucks	AWR and AXM
334-8414	Forcing Plate	new 735 and 740 Articulated Trucks	B1N00959-up, B1P02709-up, and B1R00360-up

Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

Implements, Frame, Hitch and Suspension

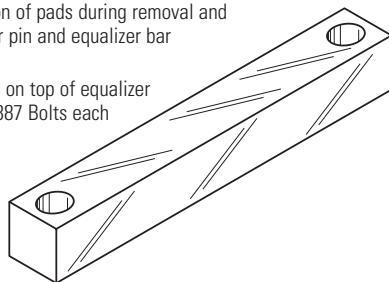
Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and AssemblyMotor Grader Controls,
Cable Control and WinchLoader Lift Arm and
Excavator ImplementImplements, Frame,
Hitch and Suspension**FT1485 Equalizer Pad Compressor Bar**

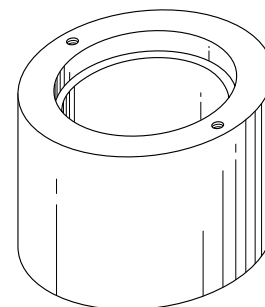
SMCS Code: 7206-010
Model: 943 Track Loader
Warranty: None

- Used for compression of pads during removal and installation of center pin and equalizer bar (4 required)
- Fastened to 2 plates on top of equalizer pads with two 8S-3887 Bolts each
- Up to 24 washers (2M-0849 Washer) used to adjust position of bars

**FT3023 Swing Drive Sleeve**

SMCS Code: 5459-015
Model: 320C
Essential Tool
Warranty: None

- Used to disassemble excavator swing drive lower bearing
- Used with standard shop press
- Prevents damage to lower bearing seal cage
- Works with all machines using 148-4636 Swing Drive Assembly

**References**

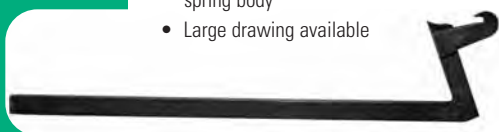
320C Excavator Service Manual; Machine Systems, Disassemble and Assemble

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

FT1421 Spring Installer

SMCS Code: 7312-017
Model: Most Caterpillar Machines
Warranty: None

- Makes it easy to install springs when assembling torsion springs used on some seat suspension groups
- Has a hook to engage tang of spring and contact surface with radius to fit against spring body
- Large drawing available

**6V-6178 Puller Plate
6V-6179 Bar Assembly**

SMCS Code: 7201-010
Model: 768, 769, 772, 773's, 776 and 777
Warranty: Six Months

- Used to separate front suspension struts from steer axle spindles on all Caterpillar off-highway trucks and tractors; tools for this operation cannot be used on all vehicles
- Two 6V-6178 Plates and four 6V-6179 Bar Assemblies used with discontinued 316-1490 Cylinder Group to provide heavy-duty tool arrangement with 16.5 kN (150 tons) capacity
- Eight 1D-4635 Bolts needed when used on 768, 769, 772 and 773's; four 3R-2299 Bolts needed when used on 776 and 777's



This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

291-4194 Separation Group

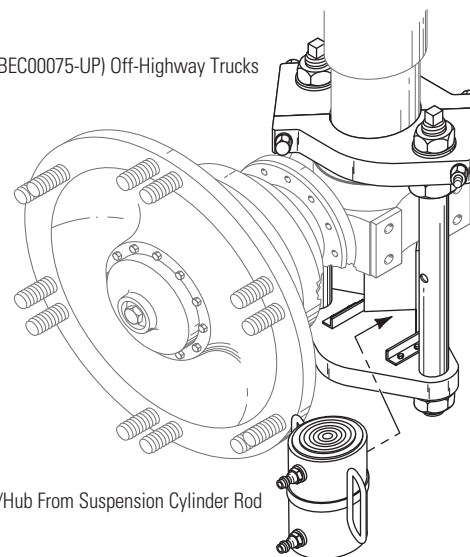
SMCS Code: 7051-076
Model: 769D (BBB00069-UP), 771D (BCA00071-UP), 773D, 773E (BDA00073-UP), 775D, 775E (BEC00075-UP) Off-Highway Trucks
Essential Tool
Warranty: Six Months

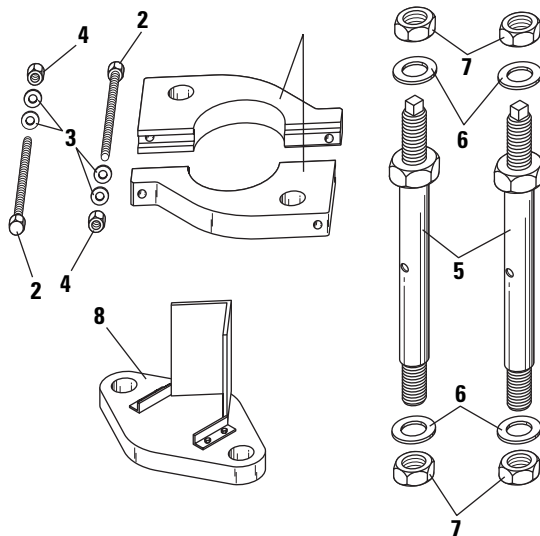
NEW TOOL

- Used to separate spindle/hub assembly from suspension cylinder rod
- Used with dealer supplied 3S-6224 Electric Hydraulic Pump (115 V) or 8S-8033 Electric Hydraulic Pump (230 V), 1U-5197 Hydraulic Cylinder (80 Ton Capacity), and two 8F-0024 High-Pressure Hoses or 6D-7726 High-Pressure Hoses
- Separation group consists of 2 interlocking top plates with bolts and nuts, a bottom plate, and 2 threaded rod assemblies with nuts and washers
- Bottom plate includes a V-shaped retainer plate for positioning and holding hydraulic cylinder during use
- Procedure can be done with components on or off-vehicle

References

NEHS0975 Tool Operating Manual; Using 291-4194 Separation Group to Separate Front Spindle/Hub From Suspension Cylinder Rod
SENR1422; 769D, 771D Disassembly and Assembly, Front Suspension Cylinders
SENR1584; 773D, 773E, 775D, and 775E Disassembly and Assembly, Front Wheel, Bearing and Dual Cone Seal - Remove





Description	Qty.	Weight
Top plate	2	27 kg (50 lb)
Bottom plate assembly	1	34 kg (75 lb)
Rod assembly	2	16 kg (35 lb)
Hydraulic cylinder	1	29 kg (63 lb)

Item	Part No.	Description	Qty
1	291-4196	Top Plate Assembly	1
2	9X-2475	M20 x 2.5 Bolt	2
3	8T-3282	Washer	4
4	6V-7742	M20 x 2.5 Nut	2
5	291-4195	Rod Assembly	2
6	—	Washer	4
7	8C-7328	M48 x 5 Nut	4
8	291-4197	Bottom Plate Assembly	1
Not shown	224-0554	Warning Film	2

Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

Implements, Frame, Hitch and Suspension

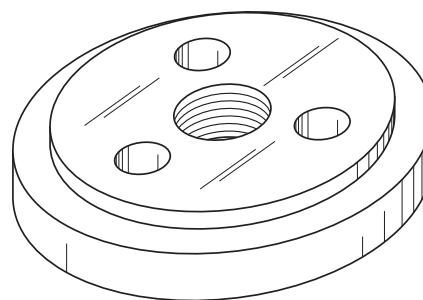
FT1795 Adapter

SMCS Code: 7107-010, 7107-017

Model: 651E, 657E

Warranty: None

- Used to remove horizontal hitch pin
- Also used to remove horizontal hitch bearing separately using 6V-3175 Hydraulic Puller



FT1939 Plate

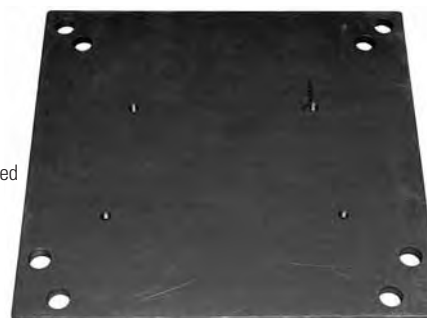
SMCS Code: 7201-010, 7201-016, 7201-015

Model: 785, 789, 793

Warranty: Six Months

- FT1939 Plate, used with 1U-5750 Engine Stand, 6,000 lb, and 1U-5749 Engine Adapter Plate supports front suspension in vertical position to facilitate repair; vertical position recommended to assure good seal alignment
- Weight of front suspension: 1850 kg (4078 lb) without axle
- Weight of gland and tube: 181 kg (400 lb)

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.



FT1939

8T-5293 Plate

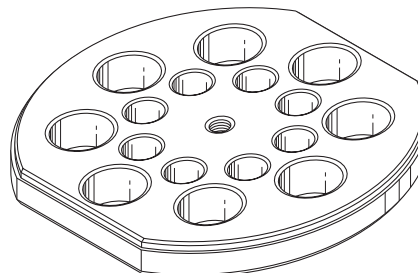
SMCS Code: 7201-011, 7201-015

Model: 789

Warranty: Six Months

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

- Used to remove gland and tube from 789 Off-Highway Truck front suspension cylinders and to press gland onto tube at installation (similar to FT1938 Plate for 785 Off-Highway Trucks)
- Front suspension cylinder should be mounted on FT1939 Plate supported by 4540kg (10000 lb) stand in vertical position when pulling gland and tube



Reference

SEN3404, 789 Truck Vehicle Systems Disassembly and Assembly Manual

8T-9205 Puller for 789

SMCS Code: 4205-076, 7201-076

Model: 789

Warranty: Six Months

- Used to separate front axle (spindle) from its suspension cylinder strut (similar to 8T-2852 Puller for 785 Off-Highway Trucks)
- Used with 8T-2853 Handle Assembly (2 required) to position puller on bottom of front axle
- Puller weight: 58.7 kg (129 lb)
- Capacity: 6470 kN (727 Ton-Force) for separating strut and spindle connection

Reference

SENR3404, 789 Truck Vehicle System Disassembly and Assembly Manual

NOTE: Support front axle before removing bolts that hold 5T-6303 Plate in position.

WARNING

To avoid possible personal injury from sudden release of the axle from the strut rod or the snapping of a bolt when removing the plate, loosen all bolts in a circular pattern one-half turn. Do this again and again until the torque for the bolts is released.

148-0357 Front Strut Handling Group

SMCS Code: 7201-010

Model: 769 through 793 Construction Mining Trucks (CMT)

Essential Tool

Warranty: Six Months

European Union compliant, CE marked

- Used to remove, disassemble, assemble, and install front strut
- Provides safe and efficient removal and installation without removing truck fenders
- Can be used as a platform for disassembly and assembly
- Must be matched with appropriate size forklift to handle weight of front strut

References

SENR2944 (769C), Service Manual

SENR2964 (773B), Service Manual

SENR5616 (777C), Service Manual

SENR5678 (785B), Service Manual

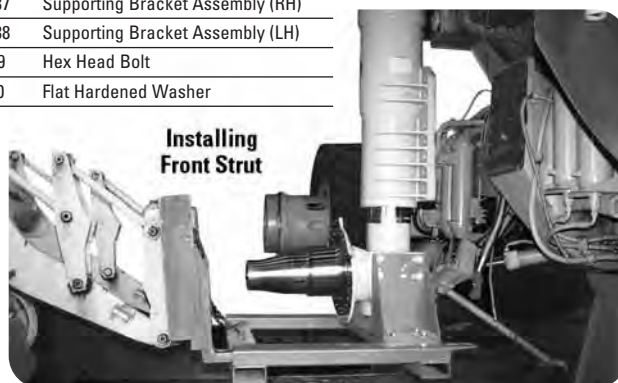
SENR5687 (789B), Service Manual

SENR5692 (793B), Service Manual

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Working load limit	6,652 kg (14,667 lb)
Inside dimension of fork spread	105 cm (41.5 in)

Part No.	Description
148-0336	Supporting Handle Bracket Assembly
148-0337	Supporting Bracket Assembly (RH)
148-0338	Supporting Bracket Assembly (LH)
1D-4709	Hex Head Bolt
5P-8250	Flat Hardened Washer



Cutter Bit Removal Tooling

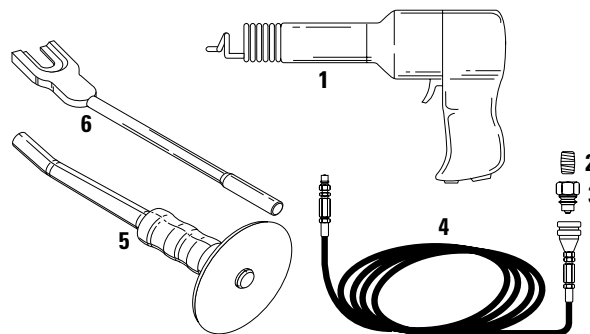
SMCS Code: 6601-011, 0605

Model: PR1000, PR750, PR450, PM565 Pavement Profilers; RR/SS250 and RM/SM350 Road Reclaimer/Soil Stabilizer

Warranty: Six Months

- Used to remove cutter bits on Caterpillar rotary mills (cold planers) and other similar equipment
- 104-8591 Hammer Punch and 8T-4474 Bit Puller are direct replacement parts for original equipment tools
- Using air hammer and air hammer punches (8T-4060 and 8T-4340) makes cutter removal even easier and faster
- Air hammer can be operated from machine's air system eliminating need for service truck when changing cutters
- Air hammer tools will work on CP-4447-RUTAB or CP-717 Chicago Pneumatic air hammers

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.



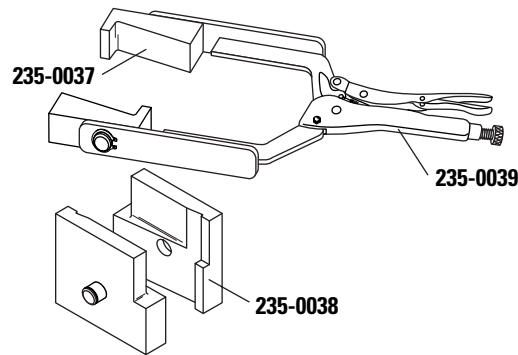
Item	Part No.	Description
1	—	Air Hammer
2	5P-8998	Pipe Nipple
3	5R-5561	Nipple Assembly
4	—	Air Hose Assembly
5	104-8591	Hammer Punch
6	8T-4474	Bit Puller

234-4278 Clamp Fixture Group

SMCS Code: 6601-11
Model: PM465 and PM-565 Cold Planner
Essential Tool
Warranty: Six Months

- Used to replace bit holder base
- Locates and holds replacement bit holders in original position, angle, and pitch
- Saves time — quickly locks base into position for welding

Service/Repair Parts	
Part No.	Description
235-0037	Jaw Fixture Assembly
235-0038	Jaw Fixture Assembly
235-0039	Clamp Fixture Assembly
6V-3072	Plastic Case
NEEG2978	Decal



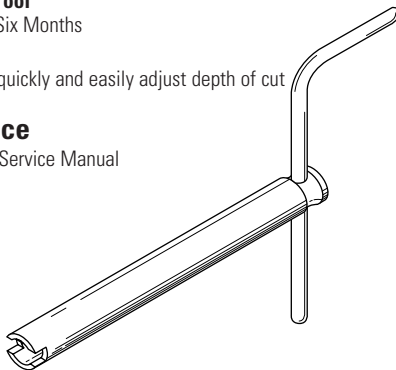
232-6299 Depth Adjuster

SMCS Code: 6634-025
Model: PC203/4 and PC404 Cold Planer Worktools on Cat Skid Steer Loaders
Essential Tool
Warranty: Six Months

- Used to quickly and easily adjust depth of cut

Reference

SEBU7705, Service Manual



1U-7184 Cable Handled Pin Remover

SMCS Code: 0605, 6805-011
Model: 5130 Mining Excavators (Front Shovel and Backhoe Styles)
Warranty: Six Months

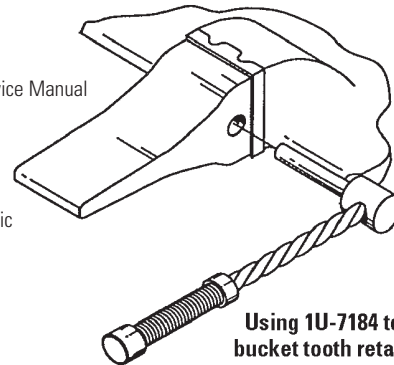
- Used to remove "FLEXPIN" from excavator bucket teeth
- Used with a sledge hammer to remove pin

Overall length	508 mm (20.0 in)
Overall height	257 mm (10.1 in)
Oval pin size	25 x 30 mm (1.0 x 1.2 in)

References

SENR6058, 5130 Service Manual Module, Disassembly and Assembly

SEHS9721, Special Instruction, Assembly Procedure for Hydraulic Excavator (5130 only)



Using 1U-7184 to remove bucket tooth retaining pins

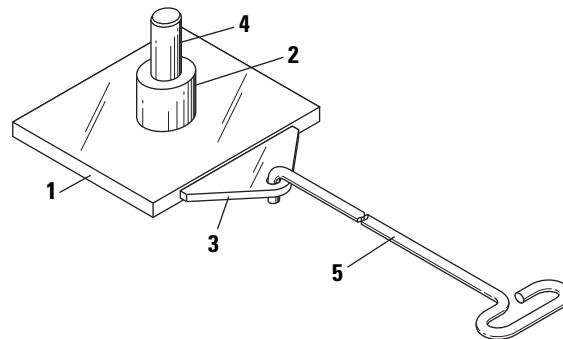
FT2614 Wedge Removal Bracket Assembly (MAA Wedges)

SMCS Code: 6822-010
Model: 994 Wheel Loaders with mechanically attached adapters
Warranty: None

- Used to remove mechanically-attached adapters on buckets
- Uses the machine's hydraulics and weight to assist in wedge removal
- Eliminates using impact-type tooling
- Material for items 1, 2, 3, and 5: SAE1020 steel
- Material for item 4: SAE4140 steel

Reference

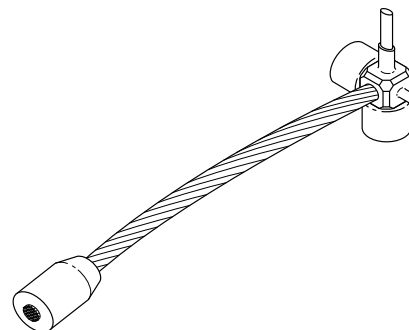
PEXT6026, 994 MAA CD-ROM



229-0287 Pin Remover

SMCS Code: 0605, 6805-011
Model: Medium Wheel Loaders and Excavators or any K Series Tooth System G.E.T.
Warranty: Six Months

- Used to remove and install "K Series Tooth System" bucket teeth retaining pins
- Used with large hammer (installation) or sledge hammer (removal)
- Easy to hold and wire rope handle reduces shock
- Urethane collars provide larger striking area, prevent damage to striking surface, and absorb shock of hammer blow
- Urethane collars also keep hammer head from sliding off of striking surface



FT3112 Installer

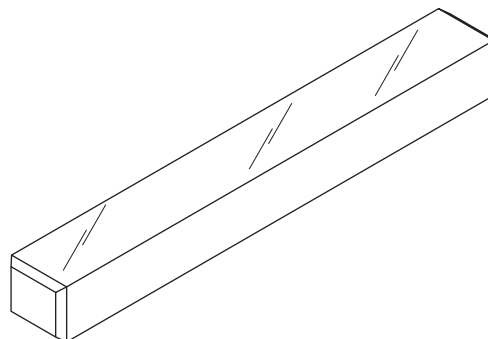
SMCS Code: 0605, 6805-011

Model: K-80, K-90, and K-100 Series Bucket Tips

Warranty: None

NEW TOOL

- Used to remove and install bucket tip retaining pins on K-series buckets
- Used with a hammer
- Sized to fit a mechanic's gloved hand when driving retaining pins
- Overall dimensions: 25 mm x 25 mm x 203 mm (1 in x 1 in x 8 in) with 2 mm (0.078 in) chamfer on each end
- Material: SAE 1020M steel



149-2872 Tooth Pin Remover Group (Small Bucket)

SMCS Code: 6822-010

Model: J200 thru J450

Warranty: Six Months

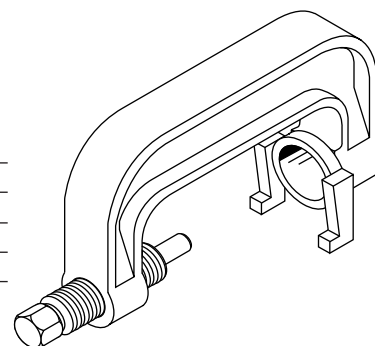
- Used to remove pins as small as 15.5 mm (0.61 in) from bucket teeth
- Used with 8T-3130 Wrench (7/8) — allows removal of teeth as close as 13.2 cm (5.2 in) apart
- Tool loosens pins so they can be removed with pliers
- 2 adapters available for correct alignment; one for J200-J400 Series, another for J450 Series teeth

Reference

NEHS0696, Tool Operating Manual

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Service/Repair Parts	
Part No.	Description
149-2874	Screw Assembly
149-2877	Small Receiving Adapter



149-2879 Tooth Pin Remover Group (Medium Bucket)

SMCS Code: 6822-010

Model: GET Products

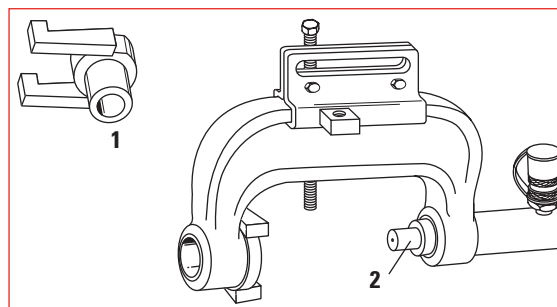
Warranty: Six Months

- Used to remove horizontal or vertical bucket pins (edge protector, J350-J400, and J450-J550 pins)
- Provides up to 10 tons of removal force
- J-style adapters hook to rear edge of tooth (provides positioning and retention while removing pins)
- Adjustable positioning bolt assists in alignment of repetitive tooth pin removal
- 3 adapters for different size pins

Pin length (maximum)	171.5 mm (6.75 in)
Throat depth (maximum)	154.0 mm (6.06 in)
Pin diameter (maximum)	22.1 mm (0.87 in)
Tooth spacing minimum clearance	211.0 mm (8.31 in)

Item	Part No.	Description
1	149-2884	Adapter, Larger (J450-J550 pins)
2	149-2882	Insert

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.



Fabric Baskets

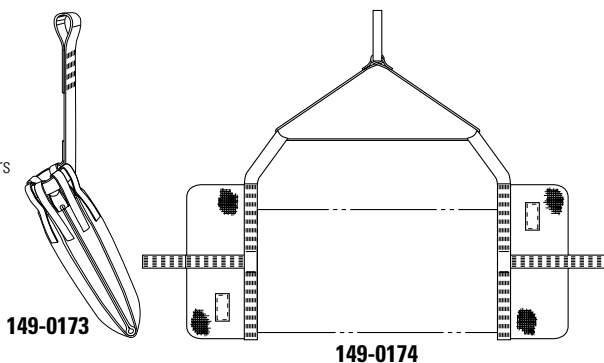
SMCS Code: 0632, 6800

Model: All Models with Ground Engaging Tools (GET)

Warranty: Six Months

European Union compliant, CE marked

- Used to help remove and install bucket teeth, cutting edges, and adapters
- Must be used with overhead lifting device
- Provides an easy method of moving Ground Engaging Tools (GET) products in and out of service trucks or shop environment
- Non-choker style baskets must be used in pairs (securely holds cutting edge)
- Suitable nylon strap (sold separately) must be used with 149-0174



References

NEHS0700, Tool Operating Manual, Using the Choker Style Fabric Basket to Install and Remove Bucket Teeth

NEHS0701, Tool Operating Manual, Using Non-Choker Style Fabric Baskets to Install Bucket or Blade Cutting Edges

Part No.	Description	Maximum Capacity	Maximum Length	Weight Capacity
149-0173	Choker Style Fabric Basket	260 mm (10.2 in) square	450 mm (17.7 in)	104 kg (230 lb)
149-0174	Non-Choker Style Fabric Basket	63.5 x 419 mm (2.5 x 16.5 in)	200 mm (7.9 in)	125 kg (275 lb)

207-0631 Tooth Pin Remover

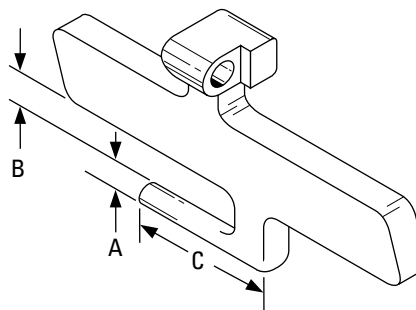
SMCS Code: 6822-010

Model: 416, 420, and 430 Backhoe Loaders and All Models with Diagonal Retention System Pins

Warranty: Six Months

European Union compliant, CE marked

- Used to remove and install flex pins from bucket teeth in a matter of minutes
- Quick and easy (recommended over punch and hammer method)
- Works on Caterpillar Diagonal Retention System (DRS) with 1-piece flex pins
- Also works on "23 Series" forged or cast teeth with horizontal flex pin retention
- Small enough to store in mechanic's toolbox



175-0138 Compression Retainer Pry Bar

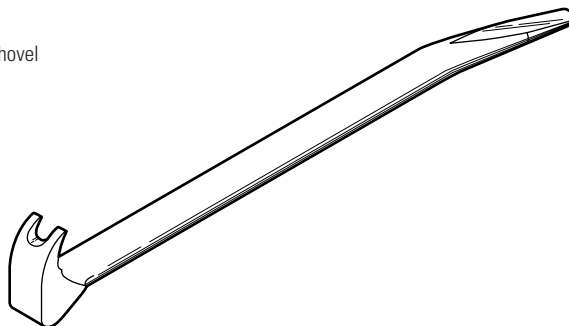
SMCS Code: 6822-010

Model: 990, 992, 998 Wheel Loader; 345, 350, 375 Excavator; 5080 Mining Shovel

Essential Tool

Warranty: Six Months

- Used to install and remove bucket tip spring retainers
- Eliminates use of hammers or other devices normally used for conventional pin removal (using other tools could cause personal injury)
- Cut out end is used to remove plug and cap
- Flat end is used to compress retainer which allows for removal
- Makes removal faster and easier



References

PEXT8026, New Caterpillar Compression Retainer and Tip System

PEXT9034, Compression Retaining System (CD-ROM)

Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and Assembly

Motor Grader Controls,
Cable Control and Winch

Loader Lift Arm and
Excavator Implement

Implements, Frame,
Hitch and Suspension

Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and AssemblyMotor Grader Controls,
Cable Control and WinchLoader Lift Arm and
Excavator ImplementImplements, Frame,
Hitch and Suspension

160-4947 Handling Bracket Assembly

SMCS Code: 6822-010

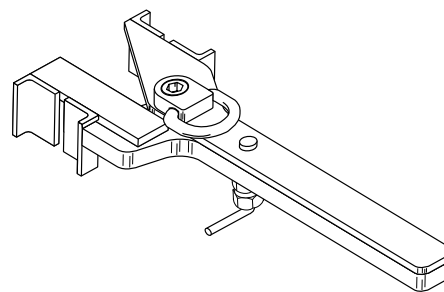
Model: GET Series 40 and 50 Wear Blocks

Essential Tool

Warranty: Six Months

European Union compliant, CE marked

- Used to quickly and easily lift wear blocks into place (lightweight and simple to use)
- Provides a positive lock that retains wear block to handling tool
- Allows infinite positioning



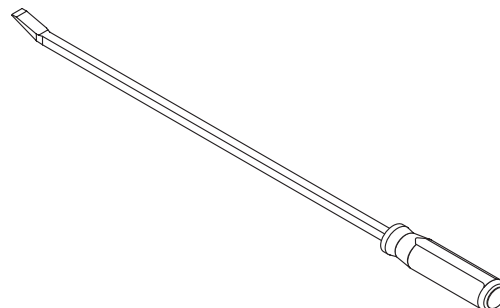
263-0039 Pry Bar

SMCS Code: 6803, 6805, 6100, 0607

Model: Wheel Loaders, Track-Type Loaders, Excavators, and Backhoe Loaders

Warranty: Six Months

- Used to remove and install retainers on K-series hammerless bucket teeth
- Ergonomic handle reduces hand fatigue
- Long-life finish resists rust and wear during use



Cutting Edge Handling Bracket Assemblies

SMCS Code: 6801

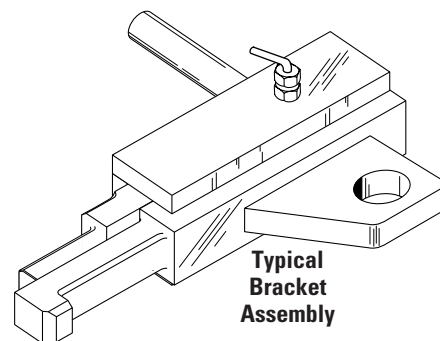
Model: Machines with Cutting Edges having Rectangular Holes

Warranty: Six Months

European Union compliant, CE marked

- Used to lift cutting edges with rectangular mounting holes
- Easy and quick attachment to cutting edge
- Adjusts to different hole sizes
- Provides positive locking

Part No.	Rectangular Hole Size	Maximum Weight Limit
152-2025	15.7, 19.1, and 22.1 mm ($\frac{5}{8}$, $\frac{3}{4}$, and $\frac{7}{8}$ in)	270 kg (595 lb)
152-2026	25.4 and 31.8 mm (1 and $1\frac{1}{4}$ in)	392 kg (864 lb)



Typical
Bracket
Assembly

8T-2852 Puller for 785

SMCS Code: 7201-010

Model: 785

Warranty: Six Months

- Used to separate front suspension strut from front axle (spindle)
- Used with 8T-2853 Handle Assembly (2 required) to position 8T-2852 Puller on bottom of front axle; install 6 bolts spaced evenly around puller to hold it to front axle
- Puller ton-force capability: 654 tons



Puller with Handle Assembly

Reference

SEN4020, 785 Truck Vehicle Systems
Disassembly and Assembly Manual

NOTE: Support front axle before removing bolt that holds 6G-6534 Plate in position.



WARNING

To avoid possible personal injury from sudden release of the axle from the strut rod or the snapping of a bolt when removing plate, loosen all bolts in a circular pattern one-half turn. Do this again and again until the torque for the bolts is released.

9U-5613 Puller Plate

FT2399 Lifting Plate

SMCS Code: 4313-011, 7301-015
Model: 789 and 793 Off-Highway Trucks
Warranty: Six Months (FT2399: None)

9U-5613 Puller Plate

- Required for front axle removal on 793 Off-Highway Truck
- Used to separate front axle from front strut (two 8T-2853 Handles may be used with puller plate to help position it to bottom of front axle)
- Similar to 8T-2852 Puller and 8T-9205 Puller used on 785 and 789 Off-Highway Trucks

NOTE: Support the front axle before removing the bolts that hold the 8X-2608 Plate in position.

WARNING

To avoid possible personal injury from sudden release of the axle from the strut rod or the snapping of a bolt when removing the plate, loosen all bolts in a circular pattern one-half turn. Do this again and again until the torque for the bolts is released.

FT2399 Lifting Plate

- Used for disassembly and assembly of front struts on 789 and 793 Off-Highway Trucks
- Used with two 2D-1201 Eye Bolts when removing rod and piston assembly from front suspension cylinders
- Service Manual shows 2 link brackets being used, which is incorrect, because link bracket mounting holes are too small for bolts required on 789 and 793 cylinders (See Service Manual changes below)

References

SENR4917, (793 Truck)
SENR3404, (789 Truck) Vehicle System Disassembly and Assembly



Puller with Handle Assembly

9U-5613 Puller Plate	
Diameter	445 mm (17.5 in)
Thickness	130 mm (5.1 in)
Weight	68 kg (150 lb)
Hardness	Rockwell C 42-47
FT2399 Lifting Plate	
Capacity	1135 kg (2500 lb)

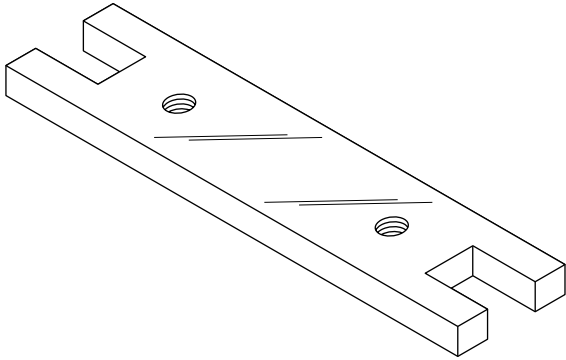
Changes to Service Manuals

SENR3404, 789 Truck Vehicle Systems Disassembly and Assembly

- Tools Needed charts on pages 53 and 56 —
Tool D, 6V-2157 Link Bracket (qty. 2), should be removed and replaced with:
FT2399 Lifting Plate (qty. 1)
2D-1201 Lifting Eye Bolt, 5/8-11 NC (qty. 2)

SENR4917, 793 Truck Vehicle Systems Disassembly and Assembly

- Tools Needed chart on page 44 —
Part number for Tool A is 8T-2853
Part number for Tool B is 9U-5613
- Tools Needed chart on page 47 —
A new column C should be added consisting of:
FT2399 Lifting Plate (qty 1)
2D-1201 Lifting Eye Bolt, 5/8-11 thd (qty 2)
- Photo above step 6 and photo above step 7 on page 48 currently show two link brackets being used. It should be noted that the new tool C is required instead.
- Tools needed chart on page 49 needs new column F consisting of:
FT2399 Lifting Plate (qty 2)
2D-1201 Lifting Eye Bolt, 5/8-11 thd (qty 2)
- Step 7 on page 49 will require tool F



Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and Assembly

Motor Grader Controls,
Cable Control and Winch

Loader Lift Arm and
Excavator Implement

Implements, Frame,
Hitch and Suspension

283-0811 Pusher Plate

SMCS Code: 4313-011, 7301-015

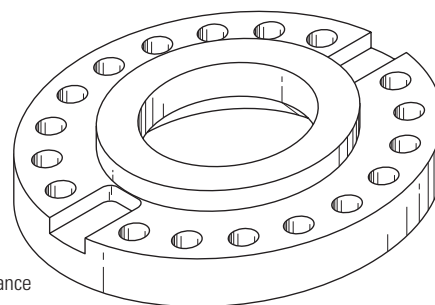
Model: 793D Extended-Life Off-Highway Truck, FDB1-Up

Essential Tool

Warranty: Six Months

NEW TOOL

- Used to separate front axle from front suspension cylinder
- Required for front axle removal
- Similar to 9U-5613 Puller Plate, but utilizes larger bolt diameter and front axle keyway clearance
- Heat treated to C42-47 for durability
- Weight: 70 kg (154.4 lb)



⚠ WARNING

To avoid possible personal injury from sudden release of the axle from the strut rod, or the snapping of a bolt when removing the plate, loosen all bolts in a circular pattern one-half turn. Do this again and again until the torque for the bolts is released.

Reference

REN8332, Disassembly and Assembly, 793D Extended-Life Off-Highway Truck, Machine Systems, Spindle (Front) Remove

NOTE: Support the front axle before removing the bolts that hold the 183-9580 Steering Arm in Position.

160-5493 Puller Plate

SMCS Code: 4313-011

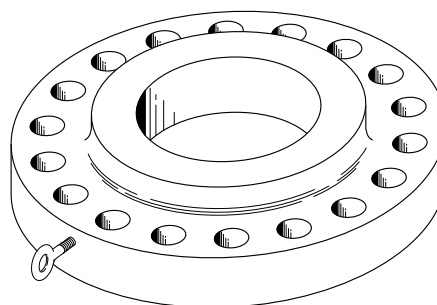
Model: 797 Off-Highway Trucks

Essential Tool

Warranty: Six Months

- Used to separate front axle from suspension strut rod
- Can be used with a hoist attached to two 1/2-13 eye bolts
- Attaches to rod with eighteen 7Y-5245 Hex Head Bolts and 9X-8259 Flat Hard Washers
- Heat-treated for added strength and durability
- Eye bolts not included

Outside diameter	533 mm (21.0 in)
Overall thickness	115 mm (4.5 in)
Bolt hole circle dimension	445 mm (17.5 in)
7Y-5245	M36 x 4.0, 150.0 mm (5.9 in) long
9X-8259	M36



6V-9080 Hitch Pin Sprocket Wrench

SMCS Code: 7107-010

Model: 651E and 657E Tractor Scrapers

Warranty: Six Months

- Used for removing or installing 5P-9093 Hex Nut (5 3/8 inch) securing horizontal hitch pin; hitch pin size increased to 3 1/2 inch-12-2B thd and 5 3/8 inch hex nut size on 651E and 657E Series Tractor Scrapers from 4 1/4 inch hex size on 651B and 657B Series
- 2 wrenches required for various stages of tractor and hitch assembly

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.



6V-9080

9U-5131 Cylinder Spanner Wrench

SMCS Code: 7201-017

Model: Articulated Trucks D25C, D30C, D25D, D30D, D350D, D35C, D35MP, D40D, D400D, D350C, D400

Warranty: Six Months

- Used to disassemble and assemble cylinder pistons from rods on suspension cylinders on articulated trucks
- Is more versatile, faster and safer than universal-type spanners
- Designed to perform without damaging or scratching piston OD or rod
- Services 4 different pistons — more economical than 4 separate tools
- Has 1 1/4 inch hex for use with 1 1/4 inch socket and torquing tool



Reference

SEN8203, Service Manual, Vehicle Systems Disassembly and Assembly (D400D)

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

5130 Mining Excavator Pin Removal/Installation Tooling

SMCS Code: 5456, 5457, 5458, 6108, 6500, 6502, 6503, 6512-010
Model: 5130 Mining Excavators (Front Shovel and Backhoe Styles)
Warranty: Six Months

Pin Pullers

- Used to remove and install boom-to-frame pin, stick-to-boom pin, bucket-to-stick pin, and all related cylinder pins — tooling is essential to properly handle large pins without damage
- Used with general tooling listed below in "General Tooling Used for All Pins"
- A locking stud is designed into each pin installer to lock pin inside installer (essential when working overhead)
- Each pin installer should be fitted with the correct cradle assembly to hold hydraulic cylinder in place

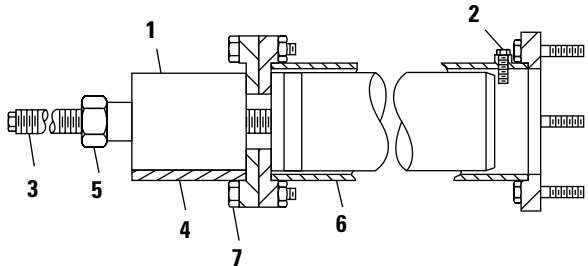
Threaded Puller Rods and Fast Runner Nuts

- Threaded rods, in various lengths, used to pull pins into or out of pin bore
- Fast runner nuts are used with threaded rod to make removal of pins faster and easier
- Puller rods screw into threaded hole in each pin

Item	Description
1	Hydraulic Cylinder
2	Square Head Setscrew (Locking Stud)
3	Threaded Puller Rod
4	Cradle Assembly
5	Fast Runner Nut
6	Pin Installer
7	Bolt Washer Nut

References

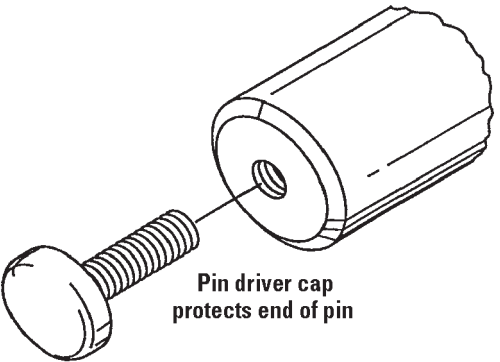
SENR6058, 5130 Service Manual Module, Disassembly and Assembly
SENR1472, 5130B Service Manual Module, Disassembly and Assembly
SEHS9721, Special Instruction, Assembly Procedure for Hydraulic Excavator (5130 only)



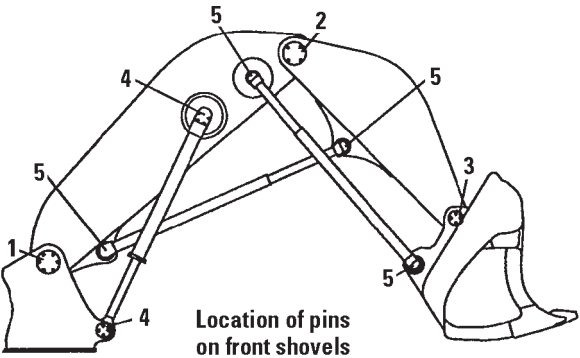
Typical pin installer and cradle assembly

Pin Driver Caps

- 2 sizes of pin driver caps are available to protect ends of pin (keeps pin from "mushrooming" at the ends)
- When installed, the caps can be hit with sledge hammer to drive pins into bore (used for installation only)
- Used only when hydraulic force is not required to install pins



5130 Front Shovel Tooling Usage



Item	Description
1	Boom-to-Swing Frame Pin
2	Stick-to-Boom Pin
3	Bucket Pin
4	Cylinder Pins
5	Cylinder Pins

General Tooling Used for All Pins

Part No.	Description
9U-6702	Threaded Puller Rod, 2.6 m (8.5 ft) long with M64 thd (1)
9U-6800	Fast Runner Nut with M64 thd (1)
—	Hydraulic Cylinder with 150 ton capacity (1)
3S-6224	Hydraulic Pump — 115 VAC (1)
8S-8033	Hydraulic Pump — 230 VAC (1)
6D-7726	Hydraulic Hose (2)

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and AssemblyMotor Grader Controls,
Cable Control and WinchLoader Lift Arm and
Excavator ImplementImplements, Frame,
Hitch and Suspension

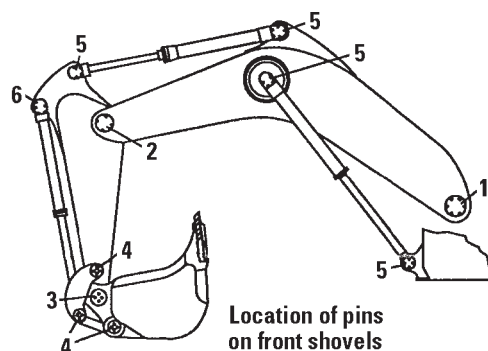
Part No.	Description
Pin No. 1 (Boom-to-Swing Frame)	
Removal	
9U-6798	Hydraulic Cylinder Plate Assembly ¹
Installation	
4C-9544	Pin Driver Cap
Pin No. 2 (Stick-to-Boom)	
Removal	
161-1783	Receiver Sleeve
9U-6798	Hydraulic Cylinder Plate Assembly ¹
Installation	
9U-6798	Hydraulic Cylinder Plate Assembly ¹
Pin No. 3 (Bucket Pin)	
Removal	
9U-6792	Pin Puller Assembly

Part No.	Description
Pin No. 4 (Cylinder Pin)	
Removal/Installation	
9U-6706	Cylinder Pin Puller Assembly
4C-9544	Pin Driver Cap (installation only)
Pin No. 5 (Cylinder Pin)	
Removal/Installation	
9U-6706	Cylinder Pin Puller Assembly
9U-6814	Threaded Puller Rod, M48 thd x 1.2 m (4.0 ft) long ²
9U-6903	Fast Runner Nut, M48 ²
9U-6758	Pin Driver Cap (installation only)

¹ Part of 9U-6791 Pin Installer Group; 9U-6791 contains the basic group of tools for removing pins (Group includes: 9U-6798, 2H-3889, 6V-8237, 8T-0363, and 8T-4001).

² DO NOT USE similar tool from general tooling list.

5130 Mass Excavator Tooling Usage



Item	Description
1	Boom-to-Swing Frame Pin
2	Stick-to-Boom Pin
3	Bucket Pin
4	Bucket Pin
5	Cylinder Pins
6	Cylinder Pins

General Tooling Used for All Pins

Part No.	Description
9U-6702	Threaded Puller Rod, 2.6 m (8.5 ft) long with M64 thd (1)
9U-6800	Fast Runner Nut with M64 thd (1)
—	Hydraulic Cylinder with 150 ton capacity (1)
3S-6224	Hydraulic Pump — 115 VAC (1)
8S-8033	Hydraulic Pump — 230 VAC (1)
6D-7726	Hydraulic Hose (2)

Part No.	Description
Pin No. 1 (Boom-to-Swing Frame)	
Removal	
9U-6798	Hydraulic Cylinder Plate Assembly ¹
Installation	
4C-9544	Pin Driver Cap
Pin No. 2 (Stick-to-Boom)	
Removal	
161-1783	Receiver Sleeve
9U-6798	Hydraulic Cylinder Plate Assembly ¹
Installation	
9U-6798	Hydraulic Cylinder Plate Assembly ¹
Pin No. 3 (Bucket Pin)	
Removal	
9U-6792	Pin Puller Assembly

Part No.	Description
Pin No. 4 (Bucket Pin)	
Removal	
9U-6792	Pin Puller Assembly
Installation	
4C-9544	Pin Driver Cap (installation only)
Pin No. 5 (Cylinder Pin)	
Removal/Installation	
9U-6706	Cylinder Pin Puller Assembly
4C-9544	Pin Driver Cap (installation only)
Pin No. 6 (Cylinder Pin)	
Removal/Installation	
9U-6706	Cylinder Pin Puller Assembly
9U-6814	Threaded Puller Rod, M48 thd x 1.2 m (4.0 ft) long ²
9U-6903	Fast Runner Nut, M48 ²
9U-6758	Pin Driver Cap (installation only)

¹ Part of 9U-6791 Pin Installer Group; 9U-6791 contains the basic group of tools for removing pins (Group includes: 9U-6798, 2H-3889, 6V-8237, 8T-0363, and 8T-4001).

² DO NOT USE similar tool from general tooling list.

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Part No.	Description	Maximum Pin Diameter	Maximum Pin Length	Maximum Rod Diameter	Maximum Capacity	Thread Size	Length	Diameter	Use
161-1783	Receiver Sleeve	220 mm (8.7 in)	1550 mm (61.0 in)	82 mm (3.2 in)	136 t (150 tons)	—	—	—	Holds pin during removal
9U-6798	Hydraulic Cylinder Plate	—	—	82 mm (3.2 in)	136 t (150 tons)	—	—	—	Used to hold hydraulic cylinder; used with 161-1783 to remove boom and stick pins
9U-6792	Bucket Pin Puller Assembly	228 mm (9.0 in)	1825 mm (71.9 in)	82 mm (3.2 in)	136 t (150 tons)	—	—	—	Holds pin during removal (hydraulic cylinder cradle assembly part of 9U-6792) and during installation
9U-6706	Cylinder Pin Puller	182 mm (7.2 in)	440 mm (17.3 in)	82 mm (3.2 in)	136 t (150 tons)	—	—	—	Used to remove cylinder pins
9U-6702	Threaded Puller Rod	—	—	—	136 t (150 tons)	M64 x 6	2.6 m (8.5 ft)	—	Used to remove and install pins
4C-8150	Threaded Puller Rod	—	—	—	136 t (150 tons)	M64 x 6	1.8 m (6.0 ft)	—	Used to remove and install pins
9U-6815	Threaded Puller Rod	—	—	—	90 t (100 tons)	M48 x 5	1.5 m (5.0 ft)	—	Used to remove and install pins
9U-6814	Threaded Puller Rod	—	—	—	90 t (100 tons)	M48 x 5	0.9 m (3.0 ft)	—	Used to remove and install pins
9U-6800	Fast Runner Nut	—	—	—	—	M64 x 6	—	—	Used with threaded puller rods to remove and install pins
9U-6903	Fast Runner Nut	—	—	—	—	M48 x 5	—	—	Used with threaded puller rods to remove and install pins
9U-6758	Pin Driver Cap	—	—	—	—	M48 x 5	77 mm (3.0 in)	101 mm (4.0 in)	Used to install pins when using sledge hammer
4C-9544	Pin Driver Cap	—	—	—	—	M64 x 6	70 mm (2.8 in)	127 mm (5.0 in)	Used to install pins when using sledge hammer

5230 Mining Excavator Pin Removal/Installation Tooling

SMCS Code: 5456, 5457, 5458, 6108, 6500, 6502, 6503, 6512-010

Model: 5230 Mining Excavators (Front Shovel)

Warranty: Six Months

Pin Pullers

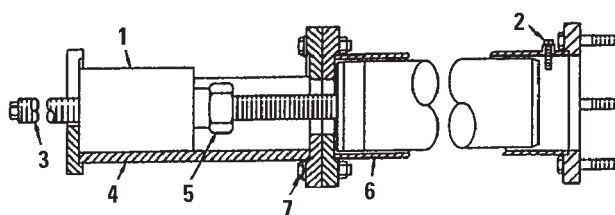
- Used to remove and install boom-to-frame pin, stick-to-boom pin, bucket-to-stick pin, and all related cylinder pins (tooling is essential to properly handle large pins without damage)
- Used with general tooling listed in "General Tooling Used for All Pins"
- A locking stud is designed into each pin installer to lock pin inside installer (essential when working overhead)
- Each pin installer should be fitted with the correct cradle assembly to hold hydraulic cylinder in place

Threaded Puller Rods and Fast Runner Nuts

- Threaded rods, in various lengths, used to pull pins into or out of pin bore
- Fast runner nuts are used with threaded rod to make removal of pins faster and easier
- Rods screw into threaded hole in each pin

Reference

SEN6108, 5230 Service Manual Module, Disassembly and Assembly



Typical pin installer and cradle assembly

Item	Part No.	Description
1		Hydraulic Cylinder
2		Square Head Setscrew (Locking Stud)
3		Threaded Puller Rod
4		Cradle Assembly
5		Fast Runner Nut
6		Pin Installer
7		Bolt
	6V-8237	Washer
	8T-4001	Nut

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

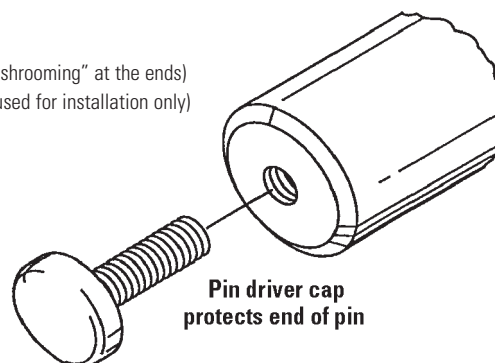
Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

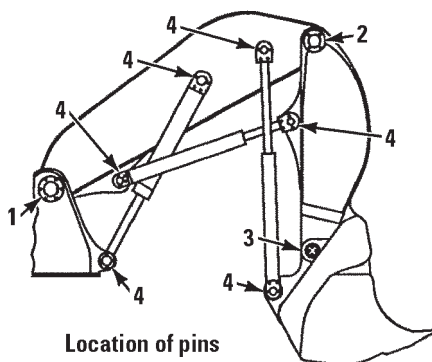
Implements, Frame, Hitch and Suspension

Pin Driver Caps

- 2 sizes of pin driver caps are available to protect ends of pin (keeps pin from “mushrooming” at the ends)
- When installed, the caps can be hit with sledge hammer to drive pins into bore (used for installation only)
- Used only when hydraulic force is not required to install pins



5230 Front Shovel Tooling Usage



Location of pins

Item	Description
1	Boom-to-Swing Frame Pin
2	Stick-to-Boom Pin
3	Bucket Pin
4	Cylinder Pins

General Tooling Used for All Pins

Part No.	Description	Qty.
9U-6702	Threaded Puller Rod, 2.6 m (8.5 ft) with M64 thd	1
9U-6800	Fast Runner Nut with M64 thd	1
—	Hydraulic Cylinder with 150 ton capacity	1
3S-6224	Hydraulic Pump, 115 VAC	1
8S-8033	Hydraulic Pump, 230 VAC	1
6D-7726	Hydraulic Hose	2

Part No.	Description
Pin No. 1 (Boom-to-Swing Frame)	
Removal	
—	Boom Pin Tube Assembly
—	Hydraulic Cylinder Plate
Installation	
—	Boom Pin Tube Assembly
1U-6197	Installer Cradle Assembly

Part No.	Description
Pin No. 3 (Bucket Pin)	
Installation	
1U-6201	Bucket Pin Installer Assembly
Pin No. 4 (Cylinder Pin)	
Removal/Installation	
1U-6202	Cylinder Pin Puller Assembly
—	Threaded Puller Rod, M64 thd x 1.2 m (4.0 ft) long ¹
4C-9544	Pin Driver Cap (installation only)

¹ DO NOT USE similar tool from general tooling list.

Part No.	Description	Maximum Pin Diameter	Maximum Pin Length	Maximum Rod Diameter	Maximum Capacity	Thread Size	Length	Diameter	Use
1U-6196	Boom Pin Tube	304 mm	2100 mm	82 mm	136 t	—	—	—	Holds pin during removal
1U-6197	Installer Cradle Assembly	—	—	82 mm (3.2 in)	136 t (150 tons)	—	—	—	Used to hold hydraulic cylinder; to install boom pin
1U-6201	Bucket Pin Installer Assembly	—	—	82 mm (3.2 in)	136 t (150 tons)	—	—	—	Used to hold hydraulic cylinder; used with 1U-6200 to install boom pin
1U-6202	Cylinder Pin Puller	220 mm (8.7 in)	450 mm (17.7 in)	82 mm (3.2 in)	136 t (150 tons)	—	—	—	Used to remove cylinder pins
9U-6702	Threaded Puller Rod	—	—	—	136 t (150 tons)	M64 x 6	2.6 m (8.5 ft)	—	Used to remove and install pins
4C-8150	Threaded Puller Rod	—	—	—	136 t (150 tons)	M64 x 6	1.8 m (6.0 ft)	—	Used to remove and install pins
9U-6800	Fast Runner Nut	—	—	—	—	M64 x 6	—	—	Used with threaded puller rods to remove and install pins
4C-9544	Pin Driver Cap	—	—	—	—	M64 x 6	77 mm (3.0 in)	101 mm (4.0 in)	Used to install pins when using sledge hammer

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

5230B Mining Excavator Pin Removal/Installation Tooling

SMCS Code: 5456, 5457, 5458, 6108, 6500, 6502, 6503, 6512-010

Model: 5230B Mining Excavators

Warranty: Six Months

Pin Pullers

- Used to remove and install boom-to-frame pin, stick-to-boom pin, bucket-to-stick pin, and all related cylinder pins (tooling is essential to properly handle large pins without damage)
- Used with general tooling listed in "General Tooling Used for All Pins"
- A locking stud is designed into each pin installer to lock pin inside installer (essential when working overhead)
- Each pin installer should be fitted with the correct cradle assembly to hold hydraulic cylinder in place

Threaded Puller Rods and Fast Runner Nuts

- Threaded rods, in various lengths, used to pull pins into or out of pin bore
- Fast runner nuts are used with threaded rod to make removal of pins faster and easier
- Rods screw into threaded hole in each pin

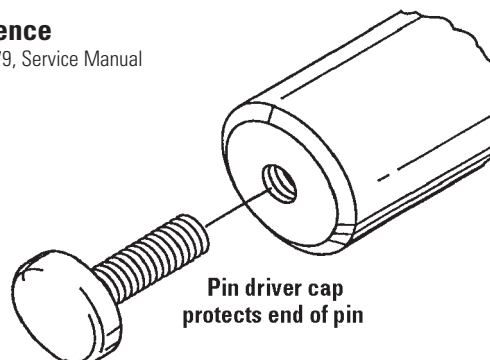
This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Pin Driver Caps

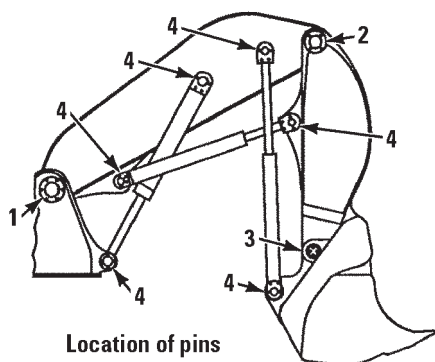
- 2 sizes of pin driver caps are available to protect ends of pin (keeps pin from "mushrooming" at the ends)
- When installed, the caps can be hit with sledge hammer to drive pins into bore (used for installation only)
- Used only when hydraulic force is not required to install pins

Reference

REN3379, Service Manual



5230B Front Shovel Tooling Usage



Location of pins

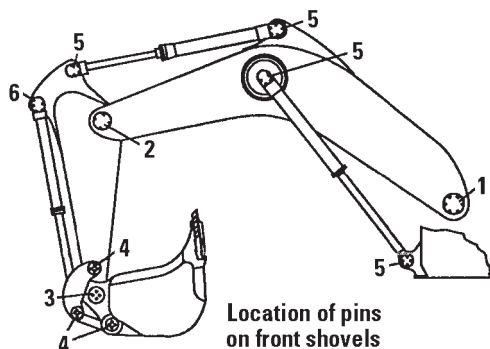
Item	Description
1	Boom-to-Swing Frame Pin
2	Stick-to-Boom Pin
3	Bucket Pin
4	Cylinder Pins

Pin No. 1	
—	Receiving Sleeve
1U-6197	Installer Cradle
9U-6702	Puller Stud, M64 thd
Pin No. 2 and 4	
1U-6202	Receiving Sleeve
9U-6702	Puller Stud, M64 thd
1U-6201	Installer Assembly
Pin No. 3	
1U-6201	Installer Assembly
9U-6702	Puller Stud, M64 thd

General Tooling Used for All Pins		
Part No.	Description	Qty.
—	Cylinder Group, 150 ton	
1U-6197	Installer Cradle	
4C-8152	Retaining Plate	
9T-2240	Threaded Rod, M10 thd	4
8T-4121	Washer, M10 thd	4
8T-4133	Nut, M10 thd	8
9U-6800	Runner Nut, M64 thd	
4C-9544	Pin Driver Cap, M64 thd	
3S-6224 ¹	Hydraulic Pump, 115 VAC	
8S-8033 ¹	Hydraulic Pump, 230 VAC	
Requires the following ¹		
6D-7726	Hose Assembly, 11.5 feet	2
135-2532	Bushing	2
135-2533	Street Ell	
1P-2376	Coupler Assembly	2
1P-2377	Plug	2
8T-0820	Pressure Gauge	

Part No.	Description	Maximum Pin Diameter	Maximum Pin Length	Maximum Rod Diameter	Maximum Capacity	Thread Size	Length	Diameter	Use
—	Boom Pin Tube Assembly	304 mm (12.0 in)	2100 mm (82.7 in)	82 mm (3.2 in)	136 t (150 tons)	—	—	—	Holds pin during removal
1U-6197	Installer Cradle Assembly	—	—	82 mm (3.2 in)	136 t (150 tons)	—	—	—	Used to hold hydraulic cylinder; to install boom pin
1U-6201	Bucket Pin Installer Assembly	—	—	82 mm (3.2 in)	136 t (150 tons)	—	—	—	Used to hold hydraulic cylinder
1U-6202	Cylinder Pin Puller	220 mm (8.7 in)	450 mm (17.7 in)	82 mm (3.2 in)	136 t (150 tons)	—	—	—	Used to remove cylinder pins
9U-6702	Threaded Puller Rod	—	—	—	136 t (150 tons)	M64 x 6	2.6 m (8.5 ft)	—	Used to remove and install pins
—	Threaded Puller Rod	—	—	—	136 t (150 tons)	M64 x 6	1.2 m (4.0 ft)	—	Used to remove and install pins
9U-6800	Fast Runner Nut	—	—	—	—	M64 x 6	—	—	Used with threaded puller rods to remove and install pins
4C-9544	Pin Driver Cap	—	—	—	—	M64 x 6	77 mm (3.0 in)	101 mm (4.0 in)	Used to install pins when using sledge hammer

5230B Mass Excavator Tooling Usage

Location of pins
on front shovels

*This article has changed
since the printing of the 2009
Dealer Service Tools Catalog.*

Item	Description
1	Boom-to-Swing Frame Pin
2	Stick-to-Boom Pin
3	Bucket Pin
4	Bucket Pin
5	Cylinder Pins
6	Cylinder Pins

Part No.	Description
Pin No. 1 and 2	
—	Receiving Sleeve
9U-6702	Puller Stud, M64 thd
Pin No. 3, 4, 5 and 6	
1U-6202	Receiving Sleeve
—	Puller Stud, M64 thd

General Tooling Used for All Pins		
Part No.	Description	Qty.
—	Cylinder Group, 150 ton	
4C-8152	Retaining Plate	
9T-2240	Threaded Rod, M10 thd	4
8T-4121	Washer, M10 thd	4
8T-4133	Nut, M10 thd	8
9U-6800	Runner Nut, M64 thd	
4C-9544	Pin Driver Cap, M64 thd	
3S-6224 ¹	Hydraulic Pump, 115 VAC	
8S-8033 ¹	Hydraulic Pump, 230 VAC	
¹ Requires the following		
6D-7726	Hose Assembly, 11.5 ft	2
13S-2532	Bushing	2
13S-2533	Street Ell	
1P-2376	Coupler Assembly	2
1P-2377	Plug	2
8T-0820	Pressure Gauge	

Bearing Puller Adapters

SMCS Code: 6500, 6501, 6502, 6505, 6509, 6516-011

Model: 300 and M300 Series Excavators; 5000 Series Mining Excavators
(Front Shovel and Backhoe Styles)

Warranty: Six Months

- Used to remove sleeve bearings from boom and stick — essential to remove bearing sleeves used on 300, M300, and 5000 Series Excavators
- Also used to pull any bearing with appropriate size inside diameter
- Bearing puller adapters allow easy removal of sleeve bearings and reduce chance of damage to bearing bore
- Sides are cut away to allow adapter to be put through bearing in a sideways position and then turned up to engage against backside of bearing
- A 1¼ inch hardened washer must be used when using 1¼-12 threaded puller rods and 7H-7539 Nut

References

5000 Series Excavator Service Manual Module, Disassembly and Assembly

00 Series Excavator Service Manual Module, Disassembly and Assembly

M300 Series Excavator Service Manual Module, Disassembly and Assembly

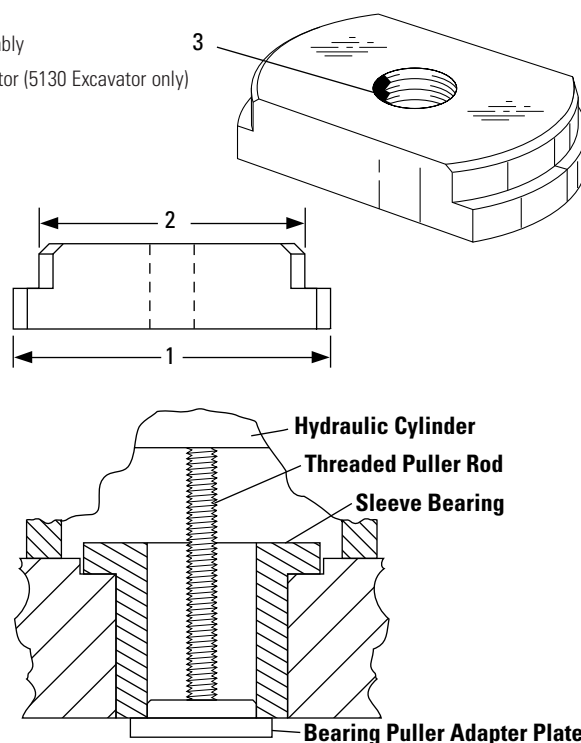
SEHS9721, Special Instruction, Assembly Procedure for Hydraulic Excavator (5130 Excavator only)

Part No.	Description	Bearing ID	Adapter OD (Item 1)	Adapter OD (Item 2)	Threaded Hole (Item 3)
123-3804	Bearing Puller Adapter	60.0 (2.36)	70.0 (2.76)	59.0 (2.32)	1¼-12
231-4349	Bearing Puller Adapter	65.0 (2.56)	75.0 (2.95)	64.0 (2.52)	1¼-12
9U-5336	Bearing Puller Adapter	70.0 (2.76)	81.0 (3.19)	69.0 (2.72)	1¼-12
9U-5337	Bearing Puller Adapter	80.0 (3.15)	91.0 (3.58)	79.0 (3.11)	1¼-12
9U-5338	Bearing Puller Adapter	90.0 (3.54)	102.0 (4.02)	89.0 (3.50)	1¼-12
9U-5339	Bearing Puller Adapter	100.0 (3.94)	112.0 (4.41)	99.0 (3.90)	1¼-12
284-2368	Bearing Puller Adapter	100.5 (3.96)	115.0 (4.53)	99.5 (3.92)	1¼-12
9U-6227	Bearing Puller Adapter	110.0 (4.33)	126.0 (4.96)	109.0 (4.29)	1¼-12
246-2386	Bearing Puller Adapter	120.0 (4.72)	137.0 (5.39)	119.0 (4.69)	1¼-12
9U-6907	Bearing Puller Adapter	120.0 (4.72)	145.4 (5.72)	119.0 (4.69)	1¼-12
9U-6260	Bearing Puller Adapter	130.0 (5.12)	150.0 (5.91)	129.0 (5.08)	1¼-12
9U-6261	Bearing Puller Adapter	140.0 (5.51)	160.00 (6.30)	139.0 (5.47)	1¼-12
1U-6217	Bearing Puller Adapter	160.0 (6.30)	185.4 (7.30)	159.0 (6.26)	1¼-12
9U-6904	Bearing Puller Adapter	200.0 (7.87)	225.4 (8.87)	199.0 (7.83)	M64 x 6
9U-6906	Bearing Puller Adapter	220.0 (8.66)	245.4 (9.66)	219.0 (8.62)	M64 x 6
9U-6905	Bearing Puller Adapter	240.0 (9.45)	285.1 (11.22)	239.0 (9.41)	M64 x 6

All measurements are in millimeters (inches).

*This article has changed
since the printing of the 2009
Dealer Service Tools Catalog.*

Part No.	Description
Used with the following tooling when adapter plate has M64 threaded holes	
9U-6800	Fast Runner Nut
—	Hydraulic Cylinder
3S-6224	Hydraulic Pump (115 VAC) or Hydraulic Pump (230 VAC)
8S-8033	Hydraulic Pump (115 VAC) or Hydraulic Pump (230 VAC)
6D-7726	Hydraulic Hose
Used with the following tooling when adapter plate has 1¼-12 threaded holes	
9U-6832	Fast Runner Nut or Nut
7H-7539	Nut
4K-0684	Hardened Washer (1¼ in)
6V-3175	Hydraulic Cylinder
3S-6224	Hydraulic Pump (115 VAC) or Hydraulic Pump (230 VAC)
8S-8033	Hydraulic Pump (115 VAC) or Hydraulic Pump (230 VAC)
6D-7726	Hydraulic Hose

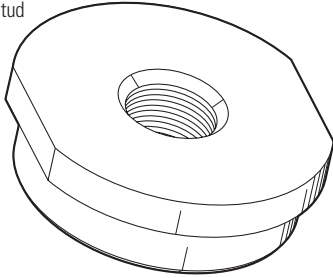


Installation of Bearing Sleeve Tooling on Stick Assembly

185-5852 Bearing Puller Adapter

SMCS Code: 0615-006, 0739
Model: 539 Knuckleboom Loader
Essential Tool
Warranty: Six Months

- Used to remove 162-6471 Bushings
- Used with 4C-9634 Stud Puller, 9U-8632 Fast Runner Nut, and discontinued 6V-0113 or 316-1489 Cylinder Group
- Bearing inside diameter: 89.2 mm (3.51 in)
- Adapter outside diameter: 87.4 mm (3.44 in)

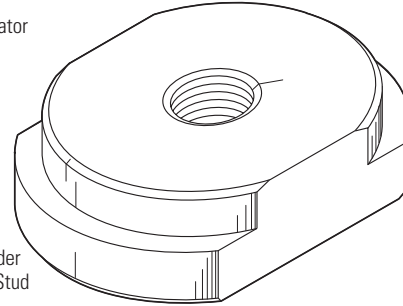


This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

284-2368 Bearing Puller Adapter

SMCS Code: 6516-011
Model: 330D Hydraulic Excavator
Essential Tool
Warranty: Six Months

- Used to remove stick nose sleeve bearings
- Heat-treated for added durability
- Used with discontinued 6V-0113 or 316-1489 Cylinder Group and 4C-9634 Puller Stud



Reference

REN8648, 330D Disassembly and Assembly Machine Systems

Thread	1¼-12
Small outside diameter	99.5 mm (3.92 in)
Large outside diameter	115.0 mm (4.53 in)

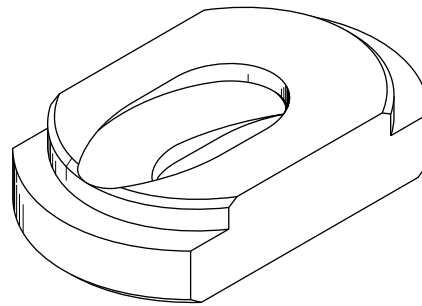
This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

185-3542 Bearing Puller Plate (988G)

SMCS Code: 7069-010, 0700
Model: 988G Wheel Loader
Warranty: Six Months

- Used to remove sleeve bearings from Y and K pin locations
- Bearing puller adapter has center swivel point for easy installation
- Heat-treated for added durability

Inside diameter	180 mm (7.1 in)
Overall outside diameter	188 mm (7.4 in)
Small outside diameter	156 mm (6.1 in)



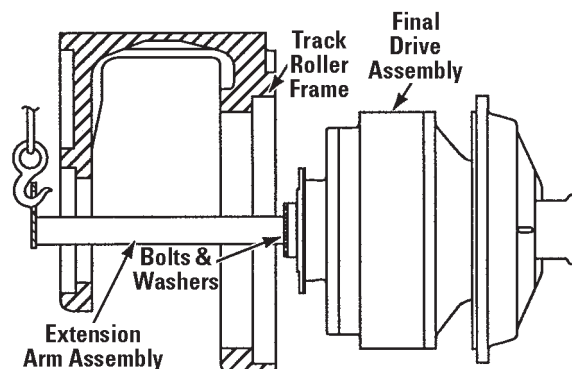
4C-9695 Extension Assembly Arm

SMCS Code: 4050-012
Model: 5230 Mining Excavators (Front Shovel)
Warranty: Six Months

- Used to remove and install final drive assembly into track roller frame
- Used with overhead hoist or equivalent to lift extension arm and final drive assembly
- Extension arm is essential to correctly and quickly install the final drive — final drive assembly must be held horizontal to allow final drive installation due to close tolerances between mounting diameters and track roller frame bores
- Bolts directly onto final drive with standard metric bolts
- Extra mounting holes allow final drive to be rotated to any desired angle (30° increments) during installation — helps to align final drive mounting holes for assembly
- Bolts and washers are required to mount extension to final drive — 6V-3532 Bolt (M20 x 60 mm long) and 8T-3282 Washer
- Overall length: 1168 mm (46.0 in)
- Approximate weight: 49.8 kg (110 lb)

Reference

SEN6108, 5230 Service Manual Module, Disassembly and Assembly



Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

Implements, Frame, Hitch and Suspension

Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and AssemblyMotor Grader Controls,
Cable Control and WinchLoader Lift Arm and
Excavator ImplementImplements, Frame,
Hitch and Suspension

FT2624 Support Tube Assembly

SMCS Code: 7253-084

Model: CB434B/C, CB534B/C, CB535B, CB544,
and CB545 Vibratory Compactors

Essential Tool

Warranty: None

- Used to support platform in an open position
- Safe method of platform support during servicing

References

KENR2823, Disassembly and Assembly C5535B Vibratory Compactor
Machine SystemsKENR3039, Disassembly and Assembly CR544/545 Vibratory
Compactor Machine Systems

Tube OD	50.8 mm (2.00 in) stock tolerance
Tube wall thickness	3.18 mm (0.125 in) stock tolerance
Steel	SAE1018



FT2303 Support

SMCS Code: 6643-011

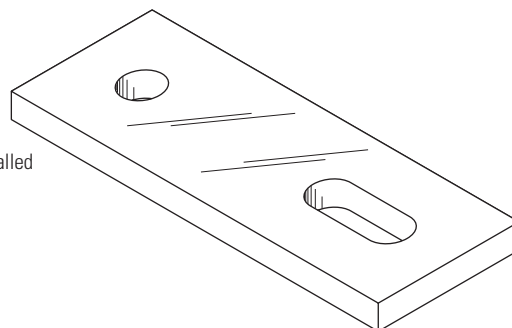
Model: AP800 and AP1200 Pavers

Warranty: None

- Used during replacement of main screed plate (2 required)
- When crown gap cover is removed from screed frames, supports should be installed temporarily in place of crown gap cover to prevent screed frames from shifting.

Reference

KEBR1235, Service Manual



FT2302 Alignment Tool

SMCS Code: 5160-024

Model: PR-450 Pavement Profiler

Warranty: None

- Used to align gear box drive sheave with engine
- Other parts needed:
1S-2830 Stud, 152.4 mm (6 in) length, 5/8-11 NC and 5/8-18 UNF (3)
1D-4720 Nut, 5/8-11 NC (3)
S0509 Bolt, 3/8-16 NC (4)
- Using this tool is fastest and easiest way to align sheave

References

KELR1202, Service Manual

KELR1214, Service Manual

KELR1217, Service Manual

KELR1218, Service Manuals



Cab Tilt Braces

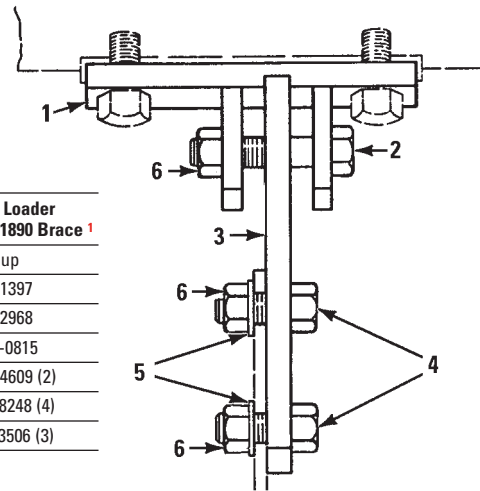
SMCS Code: 7300-508
Model: 943, 953, 963 and 973 Loaders
Warranty: Six Months

- Used to secure cabs when they are tilted to 90° position
- Brace groups bolt between operator platform and loader frame
- Cab braces not serviced as group under single part number; all components of the groups must be ordered individually

Item	Description	943 Loader 8G-0148 Brace ¹	953 Loader 8G-0149 Brace ¹	963 Loader 8G-1847 Brace ¹	973 Loader 8G-1890 Brace ¹
	Group	Group	Group	Group	Group
1	Bracket Assembly	8G-1397	8G-1397	8G-1397	8G-1397
2	Bolt	3B-2968	3B-2968	3B-2968	3B-2968
3	Plate	8G-6187	8G-6188	8G-1849	3W-0815
4	Bolt	0L-1178 (2)	0L-1178 (2)	0S-1626 (2)	1D-4609 (2)
5	Washer	5P-8248 (2)	5P-8248 (2)	5P-8248 (2)	5P-8248 (4)
6	Nut	1B-4331 (3)	1B-4331 (3)	1B-4331	2J-3506 (3)

¹ Cancelled

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.



Typical Brace Group Component Location

FT3014 Reaction Arm Assembly

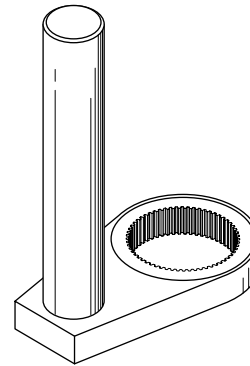
SMCS Code: 7266-010, 7301-010
Model: 789A (9ZC1-UP), 789B (7EK1-UP), and 789C (2BW1-UP) Off-Highway Trucks
Warranty: None

- Used to remove and tighten bolts securing cab support assemblies (outriggers) to frame assembly; especially helpful when removing and torquing the lower bolted joint on the rear cab support
- Used with 194-7586 Pneumatic Wrench Group and 258-5686 Modified Impact Socket

Reference

SEBE9071 Service Letter, Product Improvement Program for Inspecting and/or Replacing the Rear Cab Support on Certain 789 Off-Highway Trucks

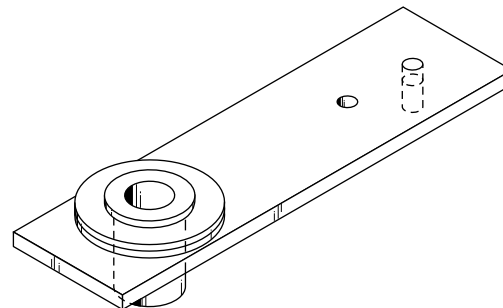
This article has changed since the printing of the 2009 Dealer Service Tools Catalog.



127-8073 Articulation Sending Unit Alignment Gauge

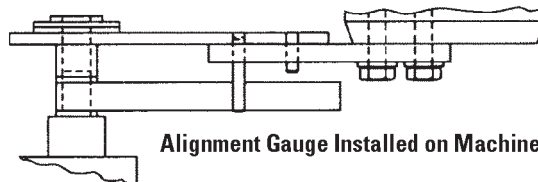
SMCS Code: 4806-036
Model: All H Series Motor Graders
Warranty: Six Months

- Used to make sure 3E-5383 Articulation Sending Unit matches actual position of vehicle's articulation (if sensor is not aligned properly, operator's display for articulation in cab will be incorrect)
- Alignment gauge is required to realign replacement sensors, or if sensor moved for any reason such as work to, or around articulation joint area
- Allows quick and accurate positioning of sensor relative to 2 fixed points on machine
- Sensor is properly positioned when bushing, pin, and hole are all aligned
- Overall size: 25.0 x 89.0 x 16.0 mm (0.10 x 3.50 x 0.63 in)



Reference

Service Manual Module



Alignment Gauge Installed on Machine

Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

Implements, Frame, Hitch and Suspension

Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and AssemblyMotor Grader Controls,
Cable Control and WinchLoader Lift Arm and
Excavator ImplementImplements, Frame,
Hitch and Suspension**1U-9099 Adapter**

SMCS Code: 5070-081

Model: Challenger 35, 45 and 55

Warranty: Six Months

- Used to provide connection to pump when checking servo up-stroke pressure from inside port (there is insufficient clearance to attach pressure gauge onto top of pump)
- Threads into inside port on top of steering pump
- Uses quick disconnect end to easily and quickly attach pressure gauge
- Thread specification: M8 x 1
- Angle: 90°

**Reference**

SENR8300 Service Manual

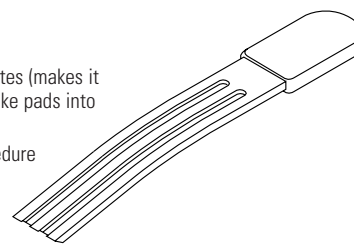
1U-9067 Hand Brake Tool

SMCS Code: 4267-012

Model: Challenger 35, 45 and 55

Warranty: Six Months

- Used to separate brake friction plates (makes it possible to separate and insert brake pads into friction plates)
- Makes a difficult installation procedure quick and easy
- Tool is angled to allow parking brake to be almost completely installed before tool is removed
- Rubber coated handle makes tool easier to hold
- With parking brake unit removed, tool is easily installed to separate discs
- Once brake pads are between friction plates, tool can be easily removed and parking brake can be mounted to housing
- Overall length: 218 mm (8.6 in)

**Reference**

SENR8300 Service Manual

PTO Component Tools

SMCS Code: 3107-010, 012, 015

Model: Challenger 35, 45 and 55

Warranty: Six Months

- Used to remove, install, assemble, and disassemble components of PTO

1U-9059 Bracket

- Used to lift PTO during removal and installation (holds PTO assembly in a horizontal position)
- Used with overhead lifting device
- Attaches to PTO housing cylinder bracket for three point hitch

1U-9066 PTO Hub Puller

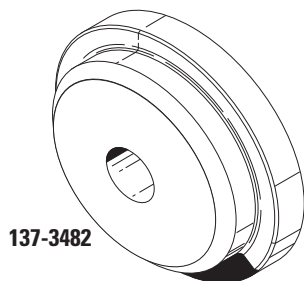
- Used to remove PTO clutch housing assembly (hub)
- Used with 8B-7548 Push/Puller Group

**1U-9059****137-3482 PTO Installer**

- Used to install 112-8695 Seal for PTO output shaft and 112-8436 Seal for rock shaft
- Handle can be attached to installer and seals are then driven into place
- Installer provides additional protection to seal during installation

Reference

SENR8300 Service Manual

**1U-9066****137-3482****137-3482 PTO Installer**

Outside diameter	92.0 mm (3.62 in)
Pilot diameter	74.3 mm (2.93 in)
Diameter of center hole	6.63 mm (0.26 in)

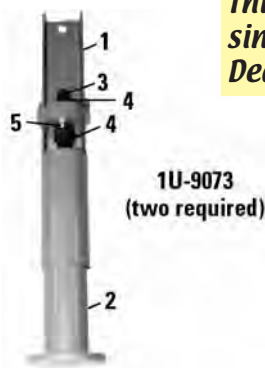
Rear Stand Group

SMCS Code: 7051-010
Model: Challenger 35, 45 and 55
Warranty: Six Months

- Used when splitting tractor to remove transmission or other driveline components
- Bolts directly to frame using counterweight bolt holes
- Support can be adjusted for height (adjustments should not be made when support is holding full load of tractor)
- Rear supports bolt on with OS-1626 Bolts and 2J-3506 Nuts — front support uses counterweight mounting bolts

Reference

SENR8300 Service Manual



This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

1U-9073 Rear Stand Group		
Item	Part No.	Description
1	—	Leg Assembly
2	1A-1935	Nut (2 required)
3	5F-7366	Screw
4	1U-9075	Rear Stand Assembly
5	5F-7353	Thrust Washer

1U-9078 Stabilizer

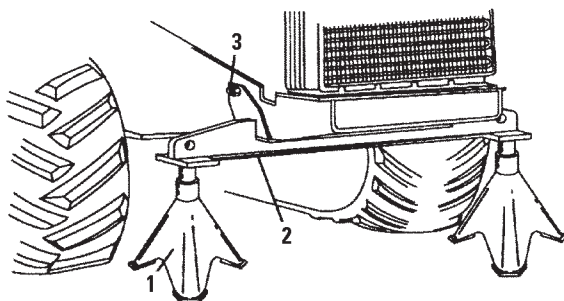
SMCS Code: 4150-010
Model: Challenger 35, 45 and 55
Warranty: Six Months

- Used to add stability to front of Challenger during undercarriage change or when working on undercarriage — spreads front stabilizing points out to 1245 mm (49.0 in)
- Used with 8S-7640 Tube Stand, 8S-7611 Tube, and 8S-7615 Pin (requires 2 of each)
- Bolts directly onto engine side frames using two OS-1626 Bolts and 2J-3506 Nuts



Reference

SENR8300 Service Manual



Using the stabilizer and tube stands

Distance between side plates	689 mm (27.1 in)
Distance between stabilizer pads	1245 mm (49.0 in)
Working load limit	4086 kg (9000 lb)
Mounting hardware (2 each)	OS-1626 Bolt, 2J-3506 Nut

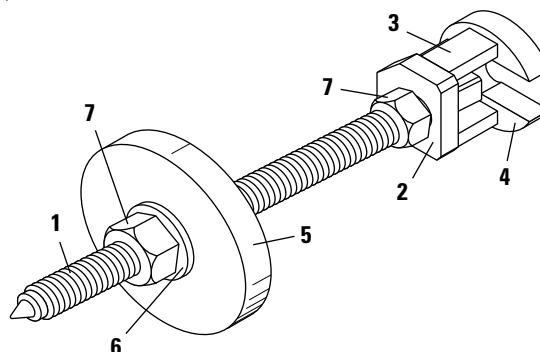
Item	Part No.	Description
1	—	Tube Stand
2	1U-9078	Stabilizer
3	OS-1626 2J-3506	Bolt and Nut

FT2635 Pin Adapter Group

SMCS Code: 7100
Model: All 35, 45, and 55 Challengers with Load Sensing Hitch
Warranty: None

- Used to remove electronic draft pin located in rear hitch (makes removal easier)
- Requires simple machining and welding
- Made from one 5F-7366 Forcing Screw, one 5P-8250 Hardened Washer, two 1A-1935 Full Nuts, and 4 fabricated parts
- To simplify machining, plate (4) can be made from a 113-5463 Retainer
- Steel specification: SAE1018
- Machining tolerances: ±1.0 mm

Item	Part No.	Description
1	5F-7366	Forcing Screw
2	—	Plate (fabricated)
3	—	Block (fabricated)
4	—	Retainer (fabricated)
5	—	Plate (fabricated)
6	5P-8250	Hard Washer
7	1A-1935	Full Nut



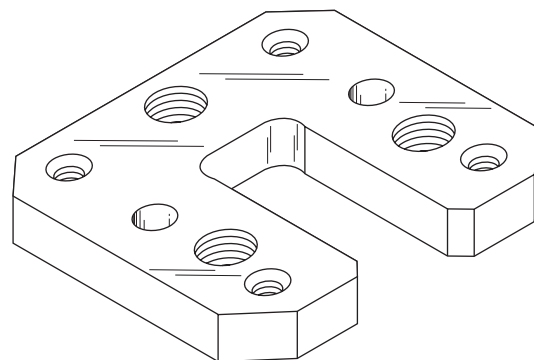
FT2647 Draft Pin Remover

SMCS Code: 7100

Model: All 35, 45, and 55 Challengers with Load Sensing Hitch

Warranty: None

- Used to remove electronic draft pin located in rear hitch
- Used with 3 forcing screws such as 8B-7552 Forcing Bolt or 5F-7345 Forcing Screw
- Can be made from a 113-5463 Retainer by drilling and tapping three additional $\frac{5}{8}$ -18 UNF holes



9U-7412 Bearing Driver Plate

SMCS Code: 7213-012

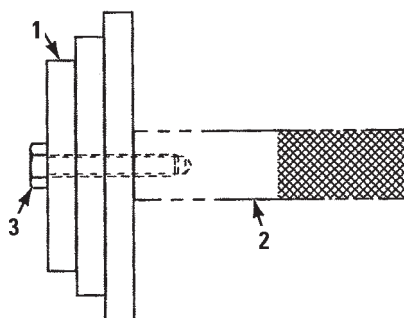
Model: 785B, 789B, and 793B Off-Highway Trucks

Warranty: Six Months

- Used to install bearings without damage
- Has 2 different pilots (1 for 8X-8654 Bearing used on 789B and 793B Off-Highway Trucks; 1 for 7I-5494 Bearing used on 785B Off-Highway Trucks)
- Used with either 1P-0531 Handle or 1P-0532 Handle and 4L-7124 Bolt (handles and bolt part of 1P-0520 Driver Group)
- Driver plate heat-treated for durability

Reference

SENR5678, 785B Vehicle Systems Disassembly and Assembly
 SENR5687, 789B Vehicle Systems Disassembly and Assembly
 SENR5692, 793B Vehicle Systems Disassembly and Assembly



Outside diameter	139.7 mm (5.50 in)
Thickness	19.05 mm (0.750 in)
Pilot diameters	114.0 mm (4.49 in) and 126.7 mm (4.99 in)
Attachment to handle	4L-7124 Bolt, $\frac{1}{4}$ in x 20 x $1\frac{1}{4}$ in
Heat treat	Rockwell C 32-38

Item	Part No.	Description
1	9U-7412	Bearing Driver Plate
Not included		
2	1P-0531 or 1P-0532	Handle (part of 1P-0520 Driver Group)
3	4L-7124	Bolt (part of 1P-0520 Driver Group)

FT2433 Bearing Removal Block

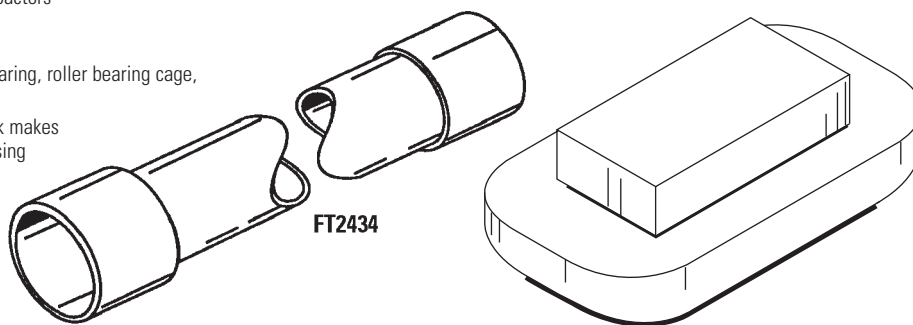
FT2434 Shaft Support Assembly

SMCS Code: 0757-010

Model: 433B, 553, and 563 Compactors

Warranty: None

- Used to remove and install bearing, roller bearing cage, and vibratory weights
- FT2433 Bearing Removal Block makes removal of bearings from housing simpler and faster
- FT2434 Support Assembly: one end used to remove vibrator weights; other end to remove roller bearing cage



Reference

Service Manual for compactor

133-0963 Hand Held Drum Vibration Tachometer

133-9905 Frequency Meter

NEEG2687 Vibration Amplitude Decal

SMCS Code: 6606-082

Model: All Vibratory Compactors

Warranty: Six Months

133-0963 Hand Held Tachometer

- Check vibrations per minute by simply placing the unit on a vibrating drum and reading the measurement (If vibration is too great to obtain a reading, simply place your hand on the drum and then place the tachometer on top of your hand. This will dampen the vibration, but still provide an accurate reading.)
- Small, lightweight, hand-held, and easily carried into the field
- Completely sealed against contamination in normal working environments
- Readings can be extrapolated to one-quarter increments (for example, 12 VPM/25 VPM)

133-9905 Frequency Meter

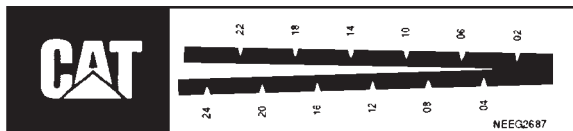
- Used to measure vibrations per minute (VPM) of vibratory compactor drums
- Low-cost option to measure vibrations per minute (good choice when exact accuracy of reading is not critical)
- Indicator can check RPM between 800 and 50,000 or cycles per second between 14 and 750

NEEG2687 Vibration Amplitude Decal

- Used to quickly and easily indicate amplitude of a vibrating surface
- Magnetized and will stick on most metal surfaces
- To obtain a reading, place decal on metal surface, 90° to direction of travel, and read wedge overlap
- Amplitude readout ranges: 0.50 to 6.35 mm (0.020 to 0.250 in)
- Size: 51.0 x 210.0 mm (2.00 x 8.25 in)

Reference

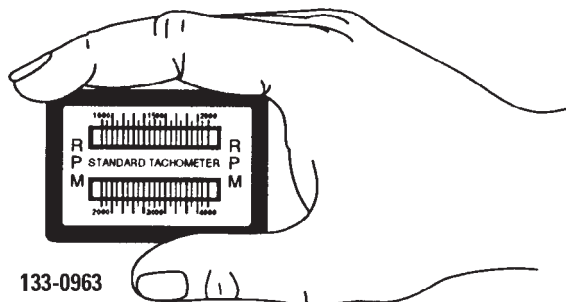
Instructions for using the 133-0963 Drum Vibration Tachometer and the 133-9905 Frequency Meter are included with each unit.



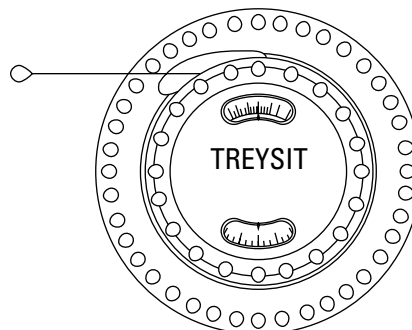
NEEG2687

Low range	1000 - 2000 VPM in increments of 50
High range	2000 - 4000 VPM in increments of 100
Overall size	76 x 51 x 64 mm (3.0 x 2.0 x 2.5 in)
Weight	370 g (13 oz)
Accuracy	0.5% of rated frequency
Individual reed accuracy	0.3% at room temperature

Size	85.0 x (3.4 in) diameter, 19.0 mm (0.75 in) thick
RPM range	800 - 50,000
Cycles per second range	14 - 750



133-0963



133-9905

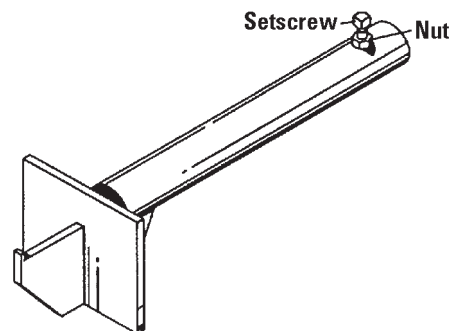
129-7142 Lifting Beam

SMCS Code: 6605-017, 0632, 0717

Model: CB534B Compactors with Split Drum Option

Warranty: Six Months

- Used to remove 5E-7415 Friction Group from compactors with split drum option (provides a way to reach inside the drum where friction group is mounted)
- Used with 6V-2082 Hook Group and overhead lifting device
- Reduces chance of damage to friction group and other drum components during removal (easier to control and guide part out of drum)
- Holds friction group in a vertical position for easier installation of mounting bolts
- Must remove grab hook, bolt, and bracket from stationary tube of 6V-2082 Hook Group before installing 129-7142 Lifting Beam
- Lifting beam is locked onto hook group with setscrew (location of lifting beam can be adjusted to obtain the best balance or center of gravity)



Maximum lifting capacity	136 kg (300 lb)
Setscrew	2H-3900 Dog Point Setscrew (1/2-13 x 1 1/2 in long)
	Nut (2) 1F-0748 Weld Nut (1/2-13)

Reference

CB534B Service Manual Module, Disassembly and Assembly

Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

Implements, Frame, Hitch and Suspension

132-5136 Brake Lifting Bracket (24H Motor Grader)

SMCS Code: 4251-010

Model: 24H Motor Grader

Warranty: Six Months

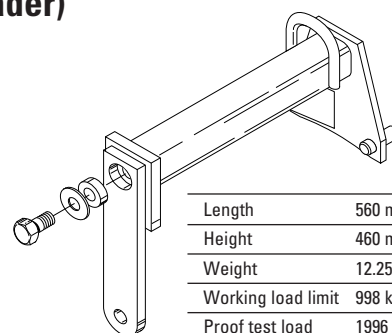
European Union compliant, CE marked

- Used to remove and install brake group (brakes do not have to be released prior to installation when using this bracket)
- Used with overhead lifting device
- Bracket easily attaches to brake group and is held securely in place with one lug nut
- Bracket can be installed without brake halves being oriented
- Bracket holds brake group in a horizontal position making removal and installation much faster and easier
- Each lifting bracket comes with a certificate of proof testing

Reference

KENR6023 Disassembly and Assembly Manual, 24M Motor Grader Power Train

NEHS1095 Tool Operating Manual: 132-5136 Brake Lifting Bracket



Length	560 mm (22.0 in)
Height	460 mm (18.1 in)
Weight	12.25 kg (27 lb)
Working load limit	998 kg (2200 lb)
Proof test load	1996 kg (4400 lb)

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

141-3028 Seal Driver

SMCS Code: 6605-012, 6606-012

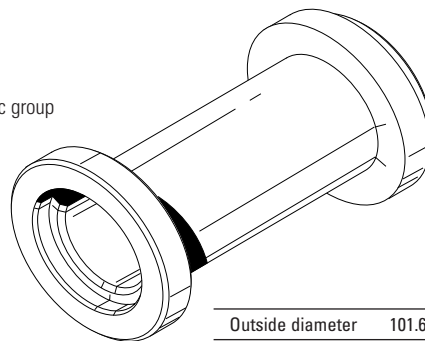
Model: CB534, CB534B, CB534C, CB535, CB634, CB634C, and CS431 Compactors

Warranty: Six Months

- Used to properly install 140-8409 and 140-8410 Seals into housing of the eccentric group
- Eliminates possibility of seal damage caused by hammer and punch (provides proper depth and uniform fit)
- Use one end of driver to install seal flush with housing, and other end of driver to install seal to a depth of 10.0 mm (0.39 in)
- Driver installs seals with housing in vehicle, getting around hard-to-reach areas

Reference

Service Manual, Disassembly and Assembly of Eccentric Group



Outside diameter	101.6 mm (4.00 in)
Inside diameter	55.6 mm (2.19 in)
Length	182.4 mm (7.18 in)

Adapter Bracket Assemblies

SMCS Code: 6605-022

Model: CS/CP 533C, CS/CP 563C, CS583C Vibratory Compactors

Essential Tool

Warranty: Six Months

European Union compliant, CE marked (151-7537)

- Used to safely remove and install compactor pods

Lifting Bracket

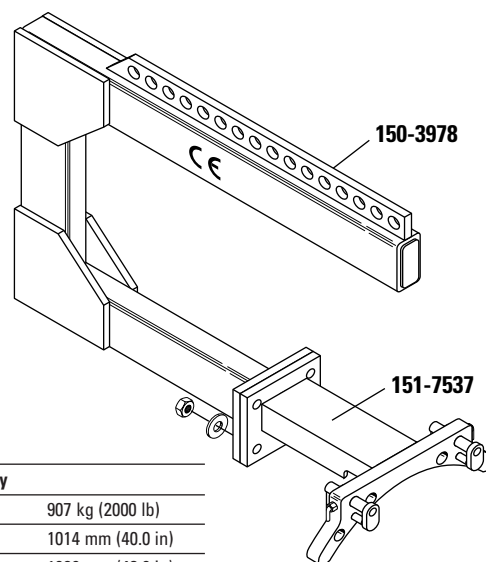
- Uses different adapter plates for various applications
- Adjustable center of gravity

Adapter Plate

- Heat-treated for added strength and durability
- Fits intricate profile of pods
- Locking pads secure pod to adapter

Reference

KENR7009 Service Manual, Compactor Disassembly and Assembly



150-3978 Lifting Bracket Assembly	
Maximum capacity	907 kg (2000 lb)
Height	1014 mm (40.0 in)
Maximum depth	1089 mm (43.0 in)
Minimum depth (without adapters)	820 mm (32.0 in)
Adjustable center of gravity	197.0 - 1089 mm (7.75 - 43.0 in) inside clearance
151-7537 Adapter Bracket Assembly	
Overall dimensions	500 x 630 x 229 mm (20.0 x 25.0 x 9.0 in)

Eccentric Weight Removal Tools for Vibratory Compactors

SMCS Code: 6605, 6606

Model: CB-434D (CNH1-Up) Vibratory Asphalt Compactor
 CB-534D (CNH1-Up) Vibratory Compactor
 CS-563E (CNG1-Up) Vibratory Soil Compactor,
 CP-563E (CNT1-Up) Vibratory Soil Compactor,
 CB-564D (C6D1-Up) Vibratory Compactor,

Essential Tool

Warranty: Six Months

European Union compliant, CE marked

NEW TOOL

- Used to remove and install various compactor drum eccentric weight housings

306-3351 C-Frame Assembly

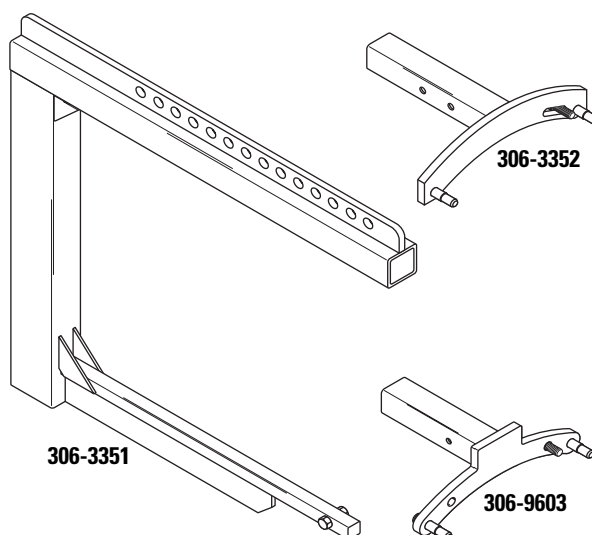
- Used with adapter assemblies for various applications
- Use with an approved shackle
- Adjustable center of gravity
- 7X-0328 Bolt, 5P-1076 Washer, and 6V-8188 Nut are used to attach adapter assemblies

306-3352 Adapter Assembly

- Used on CB534D, CB534D series XW, and CB-564D Vibratory Compactors
- Connects to 306-3351 C-frame Assembly with a lock bolt
- Fits profile of eccentric weights
- An 8T-7338 M16 Bolt secures eccentric weight to adapter

306-9603 Adapter Assembly

- Used on CB-434D, CS-563E, and CP-563E Vibratory Compactors
- Connects to 306-3351 C-frame Assembly with lock bolt
- Fits profile of eccentric weights
- A 099-0169 Bolt secures eccentric weight to adapter



	306-3351	306-3352	306-9603
Working load limit	454 kg (1000 lb)	454 kg (1000 lb)	454 kg (1000 lb)
Weight	84 kg (185 lb)	7.6 kg (16.8 lb)	6.9 kg (15.4 lb)

Reference

KENR3614 Disassembly and Assembly Manual, CB-534D, CB-534D Series XW, and CB-564D Vibratory Compactor Machine Systems

NEHS1019 Tool Operating Manual; 306-3351 C-Frame Lifting Assembly

NEHS1020 Tool Operating Manual; 306-3352 C-Frame Adapter, 306-9603 C-Frame Adapter

232-0228 Lifting Bracket Assembly

SMCS Code: 6605-011, 6605-012, 4050-011, and 4084-011

Model: CB-434D, CB-534D, CB-534D Series XW, CB-564D Compactor

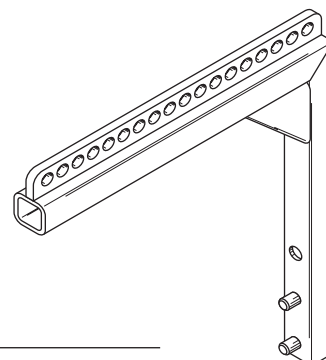
Essential Tool

Warranty: Six Months

European Union compliant, CE marked

NEW TOOL

- Used to remove and install compactor drum support plates and final drive
- Used with overhead lifting device, suitable shackle, and dealer-supplied Grade 8 bolt and washer
- Adjustable center of gravity to balance load for alignment during installation



Reference

KENR3614 Disassembly and Assembly, CB-534D, CB-534D Series XW, and CB-564D Vibratory Compactors Machine Systems

Specifications	
Maximum capacity	454 kg (1000 lb)
Overall size	82.25 x 72.39 cm (32.38 x 28.50 in)
Adjustable center of gravity	38.1 mm (1.50 in) to 68.58 cm (27.00 in)

Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

Implements, Frame, Hitch and Suspension

231-7699 Lift Adapter Assembly

SMCS Code: 6605-022

Model: CP434D and CS434D Compactor

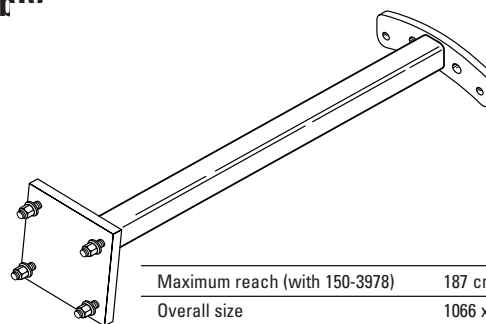
Essential Tool

Warranty: Six Months

NEW TOOL

European Union compliant, CE marked

- Used to remove eccentric weight housing without removing drum
- Used with 150-3978 Lifting Bracket Assembly



Maximum reach (with 150-3978)	187 cm (74.0 in)
Overall size	1066 x 228 x 370 mm (42.0 x 9.0 x 14.5 in)
Angle of lift arm	80 degrees
Maximum weight load limit	200 kg (440 lb)

157-2378 Seal Installer

158-0511 Seal Guide

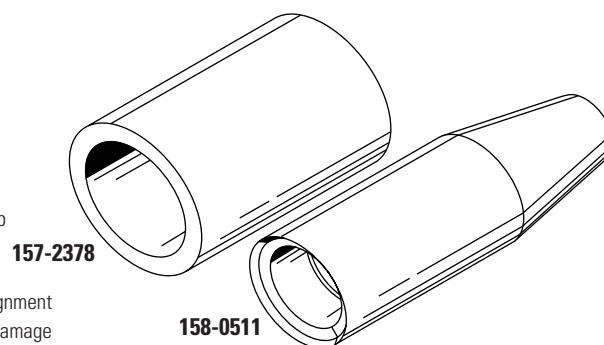
SMCS Code: 6605-012, 6606-010, 6606-012

Model: CS531, CS533, CS563, CS583, CP533, and CP563 Compactors

Essential Tool

Warranty: Six Months

- Used to properly install 126-9339 Seals into housing of eccentric group
- Eliminates seal damage caused by hammer and punch installation method (provides even installation pressure and uniform fit)
- Guide centers housings for pod assembly to ensure proper bearing alignment
- Guide seals over shaft and wear sleeve to provide proper fit without damage to seal and prevents seal from rolling



Part No.	Description	Length	Outside Diameter
157-2378	Seal Installer	101.6 mm (4.00 in)	61 mm (2.4 in)
158-0511	Seal Guide	128 mm (5.0 in)	45 mm (1.7 in)

Reference

KENR7009 Compactor Machine Systems Disassembly and Assembly Manual

154-6179 Spanner Socket

SMCS Code: 3258-017

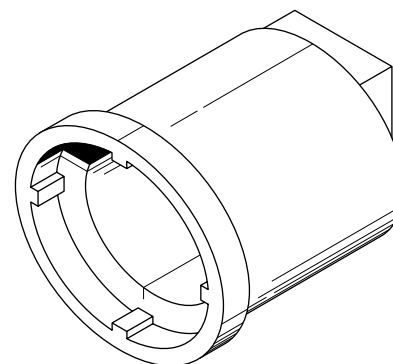
Model: PF290B, PS360B Pneumatic Compactors

Essential Tool

Warranty: Six Months

- Used to remove and install pinion spanner nut without damage
- Used with 1 inch square drive impact or torque wrench
- Heat-treated to increase durability and tool life

Length	179 mm (7.0 in)
Outside diameter	167 mm (6.6 in)
Square drive	1 in
Between teeth	131 mm (5.2 in)
Tooth width	11 mm (0.4 in)
Tooth spacing	4, equally spaced



Reference

KENR7008 and KENR7018 Differential Disassembly and Assembly Manuals

FT2593 Locking Assembly Spanner Wrench

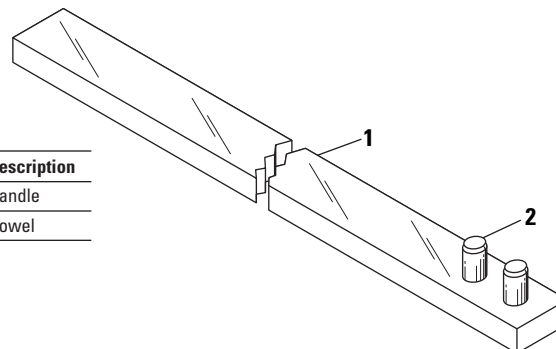
SMCS Code: 7052

Model: 583 Pipelayer

Warranty: None

- Used to rotate concentric pin to align frames and install locking assembly (provides a safe method)
- Can be made from commonly available steel
- Use 6V-3535 Dowel pins or equivalent
- Pin quantity: 2
- Handle material: ASTM A36 steel

Item	Part No.	Description
1		Handle
2	6V-3535	Dowel



Reference

SEN1811 Service Manual

FT2622 Guide

FT2623 Hook

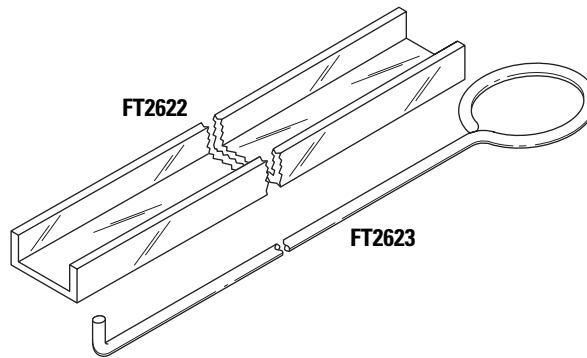
SMCS Code: 4131-016

Model: PS300(B), PS500, and Newer Model Compactors

Essential Tool

Warranty: None

- Used to quickly and easily install chain during assembly
- Easily fabricated from standard steel
- FT2623 Material: SAE1018 steel rod
FT2622 Material: SAE1018 steel channel



Reference

KENR2705 Service Manual, PS300B/PF300B Pneumatic Compactor Machine Systems Disassembly and Assembly Manual

FT2621 Deep Socket

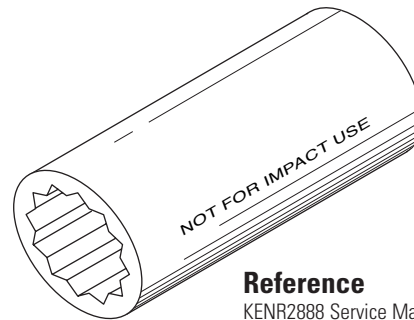
SMCS Code: 4198-010, 4198-039

Model: AP1055B Asphalt Pavers

Essential Tool

Warranty: None

- Used to adjust track (provides extra length required to reach adjusting nut)
- Fabricated from two 4C-9748 Sockets
- Not intended for use with impact wrenches
- Stamp "Not for Impact Use" on socket after welding 2 sockets together
- Socket size: $2\frac{3}{16}$ inch
- Square drive: 1 inch



Reference

KENR2888 Service Manual, AP1050 and AP1055B Asphalt Paver Machine Systems Disassembly and Assembly

NOTE: Make sure inside hex of each socket is in alignment before welding.

198-8732 Speed Sensor Gauge

SMCS Code: 4198-010, 4198-039

Model: AP-1055B, BG-2455C Asphalt Pavers

Essential Tool

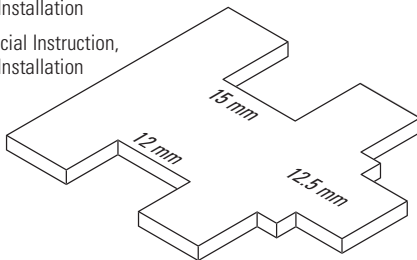
Warranty: Six Months

- Used to adjust travel motor speed sensor to proper depth (refer to Special Instruction for specific procedure for using tool)
- Faster and more accurate than other methods

Reference

REHS0895 Special Instruction, Speed Sensor Installation

REHS0894 Special Instruction, Speed Sensor Installation



FT2762 Gauge Plate

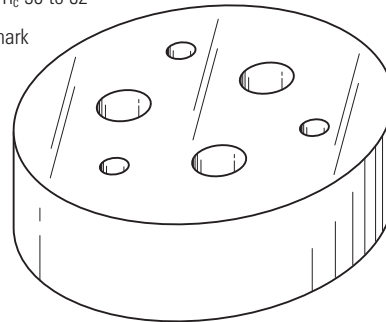
SMCS Code: 4198-010

Model: AP-1055B Asphalt Paver

Warranty: None

- Used to measure shim gap on front idler of track frame
- Allows fast, accurate shim adjustment
- Material: A2 tool steel
- Heat treat requirement: R_c 50 to 62

NOTE: Etch or otherwise mark thickness of gauge plate on outside diameter



160-3934 Centering Guide

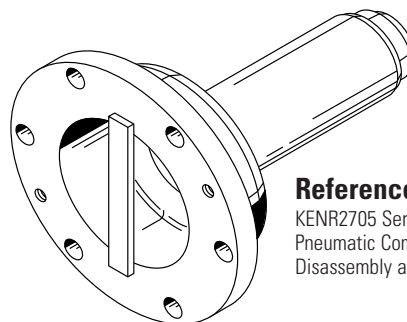
SMCS Code: 4131-016

Model: PS300B Suspended Tire Pneumatic Compactor

Essential Tool

Warranty: Six Months

- Used to properly align rear axle housings (reduces premature wear out)
- Quickly installed and removed (saves time during assembly)
- Machined to specific tolerances from high quality steel
- Overall diameter: 230 mm (9.1 in)
- Length: 270 mm (10.6 in)



Reference

KENR2705 Service Manual, PS300B/PF300B Pneumatic Compactor Machine Systems Disassembly and Assembly

Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

Implements, Frame, Hitch and Suspension

163-8003 Seal Installer

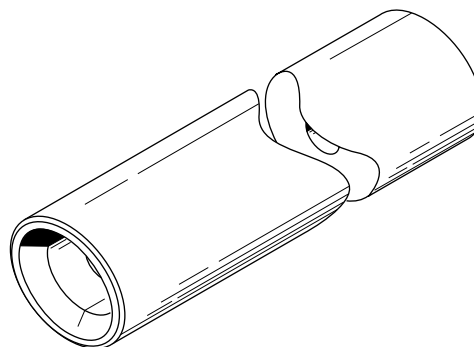
SMCS Code: 3150-016

Model: PS/PF300 Pneumatic Compactors

Essential Tool

Warranty: Six Months

- Used to properly form 8I-4154 Teflon Oil Seal to shaft
- Required during assembly of third gear cluster's low clutch shaft and output shaft assembly
- Diameter: 35.1 mm (1.38 in)
- Length: 64 mm (2.5 in)



Reference

KENR2704 PS/PF300 Propel Systems Disassembly and Assembly Manual

160-3935 Centering Guide

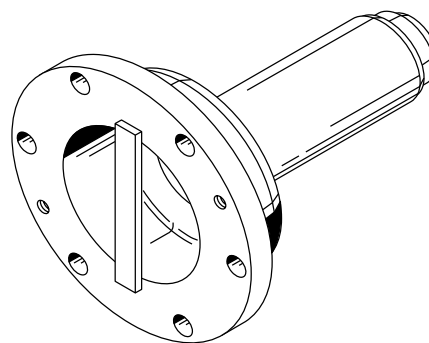
SMCS Code: 4131-016

Model: PS500 Suspended Tire Pneumatic Compactor

Essential Tool

Warranty: Six Months

- Used to properly align rear axle housings (reduces premature wear out)
- Quickly installed and removed (saves time during assembly)
- Machined to specific tolerances from high quality steel
- Overall diameter: 230 mm (9.1 in)
- Length: 324 mm (12.8 in)



Reference

KENR2705 Service Manual, PS300B/PF300B Pneumatic Compactor Machine Systems Disassembly and Assembly Manual

133-8361 Bearing Installer

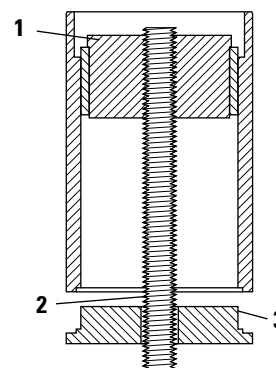
SMCS Code: 4310-028

Model: PS/PF 300B Pneumatic Compactor

Warranty: Six Months

- Used to install 112-8554 Bearing into front fork assembly — requires upper (1) and lower (3) plates
- Installer properly fits bearing, eliminating hammering and peening damage caused by improper installation techniques and tools
- Puller stud is large enough to provide adequate capacity and pulling force for sleeve bearing installation
- This tool is used for installation only

133-8361-B Plate (Item 1)	
Large diameter	123.85 mm (4.875 in)
Small diameter (fits inside bearing)	120.0 mm (4.72 in)
Threaded hole	M30 x 3.5
9U-5344 Stud (Item 2)	
Thread	M30 x 3.5
Overall length	350 mm (13.7 in) long
133-8361-A Plate (Item 3)	
Large diameter	160 mm (6.3 in)
Small diameter (fits tube assembly)	134.0 mm (5.28 in)
Puller stud hole diameter	32 mm (1.3 in)



Reference

KENR2705 Service Manual Module

163-1648 Guide

163-1650 Sleeve

163-2195 Seal Installer

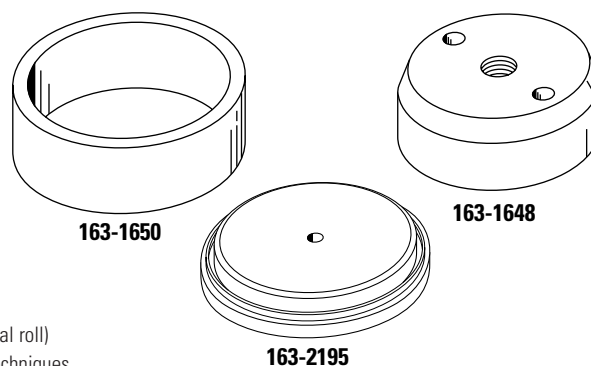
SMCS Code: 4310-012

Model: PS/PF300 and PS/PF300B

Essential Tool

Warranty: Six Months

- Used to assemble fork assembly components
- Sleeve properly aligns guide on shaft
- Guide properly aligns fork assembly during installation (eliminates lip seal roll)
- Seal installer eliminates seal damage caused by improper installation techniques and tools — used with 1P-0532 Handle (included in 1P-0520 Driver Group)



Part No.	Description	Overall Dimensions
163-1650	Sleeve	140.0 x 50.8 mm (5.51 x 2.00 in)
163-1648	Guide	120.0 x 50.8 mm (4.72 x 2.00 in)
163-2195	Seal Installer	140.0 x 25.4 mm (5.51 x 1.00 in)

Reference

KENR2705 Service Manual, PS300B/PF300B Pneumatic Compactor Machine Systems Disassembly and Assembly

154-7386 Puller Plate

154-7387 Adapter Plate

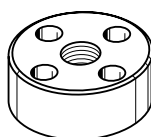
SMCS Code: 5106-010, 6157-010

Model: 24H Motorgrader

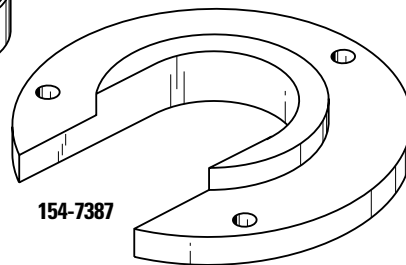
Essential Tool

Warranty: Six Months

- Used to quickly and easily remove and install blade tip pins
- Used with 9U-6751 Receiving Sleeve (33.0 cm [12.99 in] long) or 9U-6752 Receiving Sleeve (114.3 cm [45.0 in] long)
- Saves time and eliminates destruction of pin
- Bolts directly onto pin in place of pin cap
- Provides efficient means of pulling pin
- Chamfered end guides pin during installation



154-7386



154-7387

154-7386 Puller Plate	
Outside diameter	97.5 mm (3.83 in)
Thread	M30 x 3.5
Thickness	40 mm (1.6 in)
Bolt hole diameter	18 mm (0.71 in)

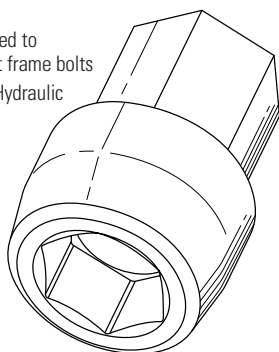
154-7387 Adapter Plate	
Outside diameter	270 mm (10.6 in)
Inside diameter	118 mm (4.6 in)
Attaching bolts	6V-5192 Socket Head Cap Screw
Bolt quantity	3

218-4175 Socket, 30 mm (1.18 in)

Model: MT735, MT745, MT755, and MT765 Ag Tractors

Warranty: Six Months

- Hytorc hex socket used to properly tighten front frame bolts
- Used with 1U-6221 Hydraulic Wrench

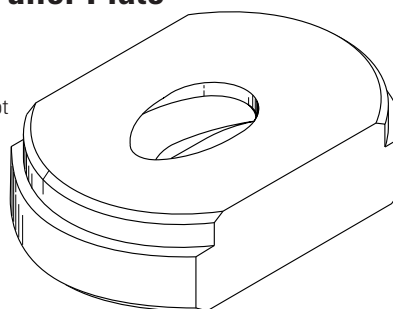


210-6670 Bearing Puller Plate

Model: D7R Track-Type Tractor

Warranty: Six Months

- Used to correctly remove old pivot shaft bearings from tractor frame and install new ones
- Bearing puller plate has center swivel point for easy installation
- Hydraulic removal of bearings is preferred over other methods, such as burning, cutting, or drilling
- Heat treated for added durability



Overall outside diameter	179.0 mm (7.05 in)
Small outside diameter	170.9 mm (6.73 in)
Hole diameter	42.0 mm (1.65 in)

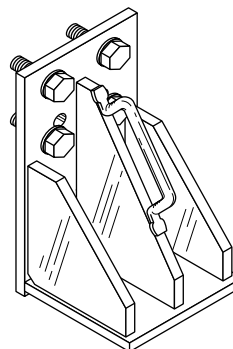
203-5584 Frame Bracket Assembly

Model: MT735, MT745, MT755, MT765, MT835, MT845, MT855, and MT865 Gen 111 Challenger Tractors

Warranty: Six Months

- Used to support front frame (in raised position)
- Used with 1U-7498 Twelve Ton Support Stands
- 2 required (bolts directly to front frame)
- Used when:
 - Changing rubber drive belts
 - Repositioning undercarriage row width
 - Removing undercarriage from tractor
 - During major service/repair work

Service/Repair Parts	
Part No.	Description
6V-8237	Hard Washer
8T-0664	Bolt, M24 x 3
8T-3282	Hard Washer
8T-6430	Bolt, M20 x 2.5



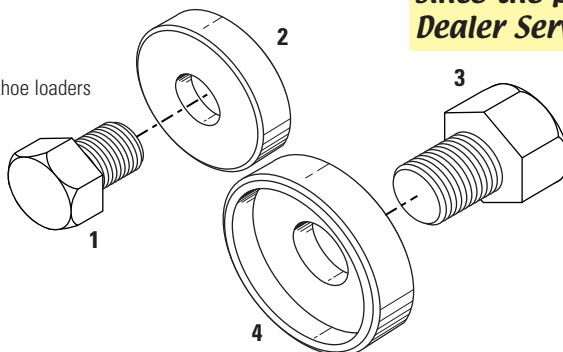
198-3112 Pin Service Group

SMCS Code: 0700

Model: All Models of Backhoe Loaders

Warranty: Six Months

- Used to remove linkage pins on all backhoe loaders
- Removes up to eight different pin sizes
- Easy pin removal — remove end cap bolt and install puller bolt and washer



This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Item	Part No.	Description	Thread	Used With
1	198-3113 ¹	Bolt	M20 x 1.5	—
2	198-3114 ¹	Washer	—	198-3113 ¹
3	198-3115 ¹	Bolt	M24 x 2	—
4	198-3116 ¹	Washer	—	198-3115 ¹

¹ Not serviced

Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and AssemblyMotor Grader Controls,
Cable Control and WinchLoader Lift Arm and
Excavator ImplementImplements, Frame,
Hitch and Suspension

254-3424 Drilling Fixture

SMCS Code: 7062-026

Model: 345B and 345C Series II Excavator

Essential Tool

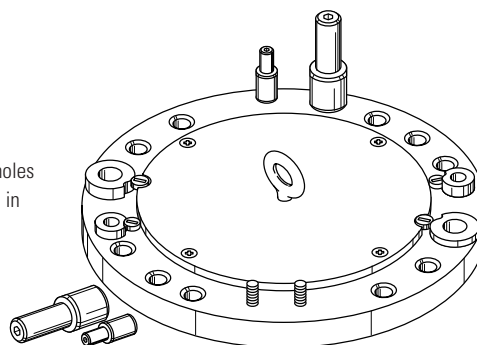
Warranty: Six Months

- Used to locate and repair damaged swing drive mounting bolt holes and dowel holes
- Comes with two 16 mm (0.629 in) and two 30 mm (1.181 in) pins (one set shown in the storage position) and bushings

Reference

Technical Information Bulletin 4228-00

REHS2415 Special Instruction



239-2296 Torque Adapter

SMCS Code: 7266

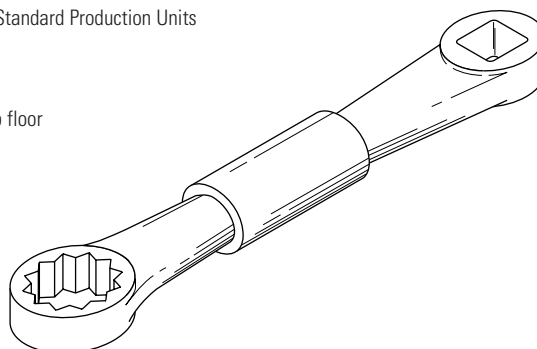
Model: IT28G Integrated Toolcarrier Machines-Special Defense Products and Standard Production Units

Essential Tool

Warranty: Six Months

- Used to remove and install 2 cab ROPS bolts located in front corners on cab floor
- Used with a 3/4 inch square drive 9U-5007 Torque Wrench
- Fits into limited clearance area where sockets or other tools will not fit
- Essential for applying proper bolt torque

Square drive	3/4 in
Socket size	30 mm, 12 point
Center-to-center distance from drive to socket	203.2 mm (8.00 in)



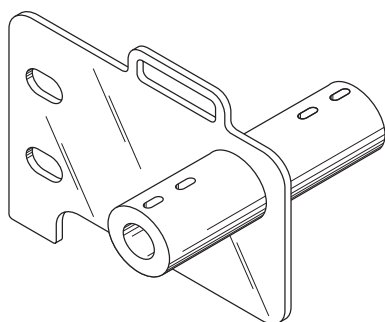
FT3028 Stall Fixture

SMCS Code: 0784

Model: 10 foot Asphalt Augers

Warranty: None

- Used to effectively obtain stall pressure on auger motor



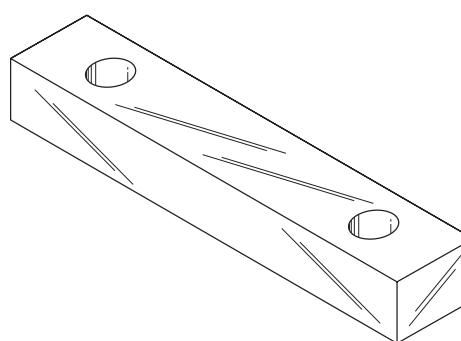
FT3029 Locking Bar

SMCS Code: 0784

Model: Asphalt Augers

Warranty: None

- Used to obtain stall pressure on auger motor



312-2967 Compressor Group

SMCS Code: 6129

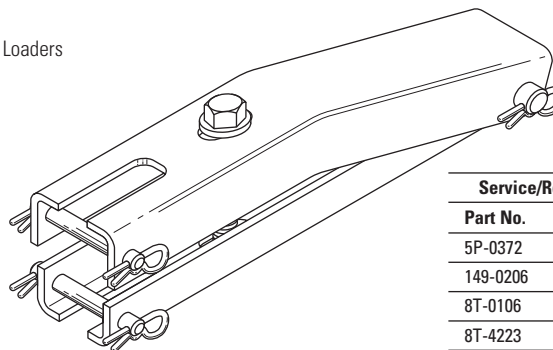
Model: 246C, 256C, 262C, 272C, 277C, 287C, and 297C Skid Steer Loaders

Essential Tool

Warranty: Six Months

NEW TOOL

- Used to install and remove 238-7693 Spring on optional quick coupler arrangement
- Used with two, 12 mm wrenches to tighten spring compression bolt
- Lock pins on end of tool arms prevent spring from ejecting during replacement procedure
- Durable steel construction



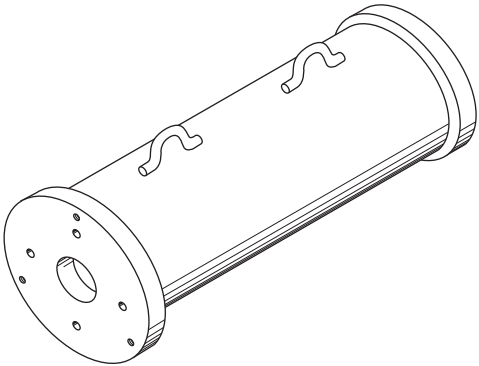
Service/Repair Parts	
Part No.	Description
5P-0372	Lock Pin
149-0206	Hex Nut
8T-0106	Bolt
8T-4223	Washer

323-7335 Sleeve Assembly

SMCS Code: 6118
Model: 994D Wheel Loader
994F Wheel Loader
Warranty: Six Months

NEW TOOL

- Used to install and remove loader arm linkage pins
- Used with 3S-6224 Hydraulic Pump (115 VAC), 8S-8033 Hydraulic Pump (230 VAC), or 9U-6600 Hydraulic Hand Pump
- Requires 6D-7726 Hydraulic Hose Assembly
- Designed to clear newer style flag pins
- Easily suspended with lifting loops
- Durable, hardened-steel construction

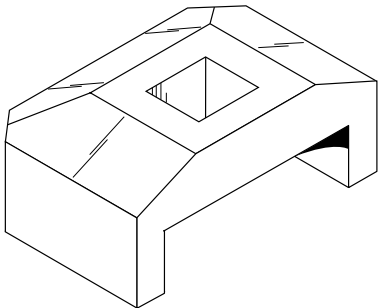


320-6627 Canister Socket

SMCS Code: 5068
Model: Wheel Loaders, Track-Type Tractors, Pipelayers, and Motor Graders
Essential Tool
Warranty: Six Months

NEW TOOL

- Used to remove and install 241-3352 Filter Housing
- Used with 1/2 inch square drive wrench
- Used on canister-style hydraulic filter, which has a square socket on housing bottom
- Socket is open on one end to clear drain plug on filter housing



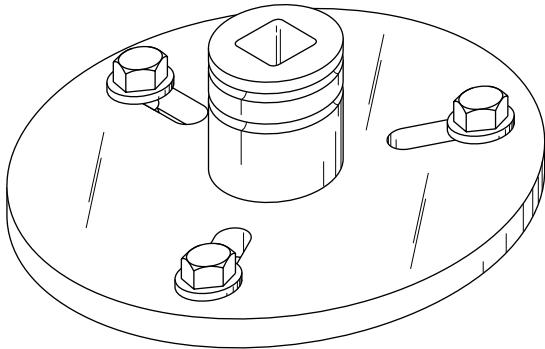
313-2527 Driver Assembly

SMCS Code: 4263
Model: 994F Wheel Loader
Essential Tool
Warranty: Six Months

NEW TOOL

- Used to remove and install accumulators
- Used with 3/4 inch square drive wrench
- Machined slots allow easy bolt alignment during attachment
- Durable, welded-steel construction

Service/Repair Parts	
6V-4248	Bolt
6V-5839	Washer



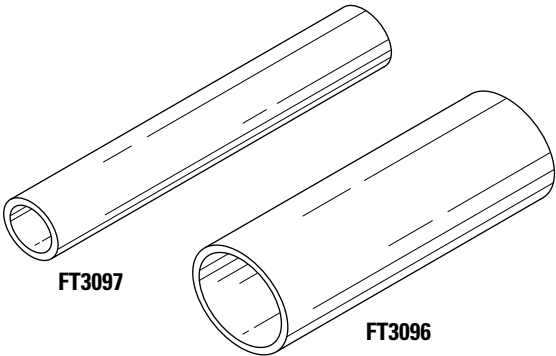
Conic Bearing Installer Tubes

SMCS Code: 7057-016, 7113-016
Model: CB-113 and CB-114 Compactor
Warranty: None

NEW TOOL

- Used to install conic bearings in articulating and oscillating hitch
- Steel construction adds durability and lengthens tool's service life
- Material: SAE 1020M steel

Part No.	Outside Diameter	Inside Diameter	Length
FT3096	72.0 mm (2.83 in)	62.0 mm (2.44 in)	200.0 mm (7.87 in)
FT3097	41.0 mm (1.61 in)	31.0 mm (1.22 in)	250.0 mm (9.84 in)



**Brake and
Steering Systems**

Hydraulic System Tools

**Hydraulic Component
Disassembly and Assembly**

**Motor Grader Controls,
Cable Control and Winch**

**Loader Lift Arm and
Excavator Implement**

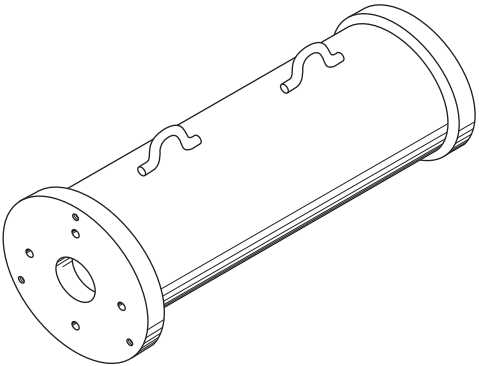
**Implements, Frame,
Hitch and Suspension**

323-7335 Sleeve Assembly

SMCS Code: 6118
Model: 994D Wheel Loader
994F Wheel Loader
Warranty: Six Months

NEW TOOL

- Used to install and remove loader arm linkage pins
- Used with 3S-6224 Hydraulic Pump (115 VAC), 8S-8033 Hydraulic Pump (230 VAC), or 9U-6600 Hydraulic Hand Pump
- Requires 6D-7726 Hydraulic Hose Assembly
- Designed to clear newer style flag pins
- Easily suspended with lifting loops
- Durable, hardened-steel construction

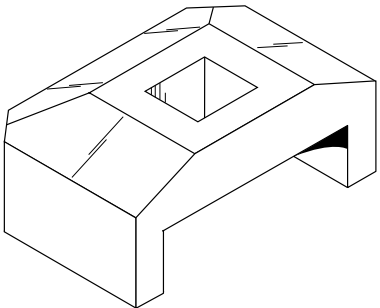


320-6627 Canister Socket

SMCS Code: 5068
Model: Wheel Loaders, Track-Type Tractors, Pipelayers, and Motor Graders
Essential Tool
Warranty: Six Months

NEW TOOL

- Used to remove and install 241-3352 Filter Housing
- Used with 1/2 inch square drive wrench
- Used on canister-style hydraulic filter, which has a square socket on housing bottom
- Socket is open on one end to clear drain plug on filter housing



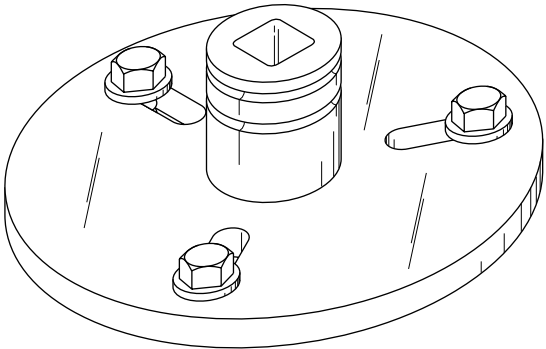
313-2527 Driver Assembly

SMCS Code: 4263
Model: 994F Wheel Loader
Essential Tool
Warranty: Six Months

NEW TOOL

- Used to remove and install accumulators
- Used with 3/4 inch square drive wrench
- Machined slots allow easy bolt alignment during attachment
- Durable, welded-steel construction

Service/Repair Parts	
6V-4248	Bolt
6V-5839	Washer



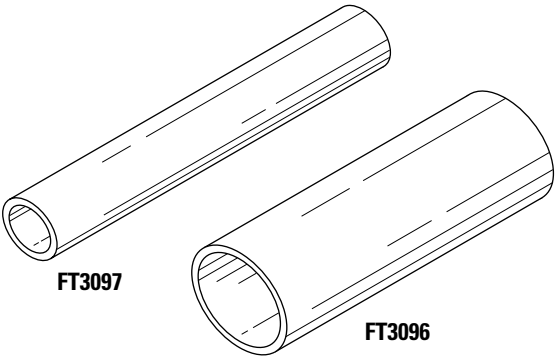
Conic Bearing Installer Tubes

SMCS Code: 7057-016, 7113-016
Model: CB-113 and CB-114 Compactor
Warranty: None

NEW TOOL

- Used to install conic bearings in articulating and oscillating hitch
- Steel construction adds durability and lengthens tool's service life
- Material: SAE 1020M steel

Part No.	Outside Diameter	Inside Diameter	Length
FT3096	72.0 mm (2.83 in)	62.0 mm (2.44 in)	200.0 mm (7.87 in)
FT3097	41.0 mm (1.61 in)	31.0 mm (1.22 in)	250.0 mm (9.84 in)



**Brake and
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Hydraulic System Tools

**Hydraulic Component
Disassembly and Assembly**

**Motor Grader Controls,
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**Loader Lift Arm and
Excavator Implement**

**Implements, Frame,
Hitch and Suspension**

NEW Vehicle System Tools

New tools since the printing of the 2009 Dealer Service Tools Catalog

Brake and Steering Systems

Brake Alignment Tool Group	318-2943
Disc Brake Wear Gauges	—
Shim Kit	338-3572
Spanner Wrench Assembly	FT3053

Hydraulic System Tools

DHCR1500 Flowmeter	348-9503
HV1500 Load Valve	348-9504
Line Relief Valve Test Manifolds	—
Spanner Kit	341-4073
Spanner Wrench Assembly	335-3395
STOR and ORFS O-Ring Seal Installers	—
Vacuum Cart Groups	—
Valve Adjuster	308-4547

Hydraulic Component Disassembly and Assembly

Adapter Assembly	346-6598
Adapter Assembly	361-1593
Check Valve Socket	FT3154
Cutter	361-1591
Gauge Group	307-7586
Gauge Group	321-5932
Hex Wrench	159-3327
Hex Wrench, 30 mm	369-9937
Hoist Cylinder Puller Assembly	FT3153
Sleeve	340-8014
Socket Screw Wrench	238-8670
Spanner Wrench Adapter Assembly	FT3143

Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

Boom Foot Pin Removal Tools	—
Linkage Pin and Sleeve Bearing Removal and Installation Tools	—
Pin Positioner Assembly	316-1752
Puller Assembly	340-4318

Implements, Frame, Hitch and Suspension

Adapter	334-1071
Driver	FT3160
Guide Support	FT3137
Lifting Bracket Assembly	345-1236
Nipple Assembly	334-0802
Nitrogen Charging Group	361-3889
Pressurizing Grease Gun	FT3119
Receiver Sleeve	FT3126
Regulator Assembly	338-0500
Socket	336-6457
Sleeve Assembly	332-7591
Spanner Wrench	347-1694

FT3053 Spanner Wrench Assembly

SMCS Code: 3275-015, 5631-015-BRK, 6637-015-BRK
3275-016, 5631-016-BRK, 6637-016-BRK

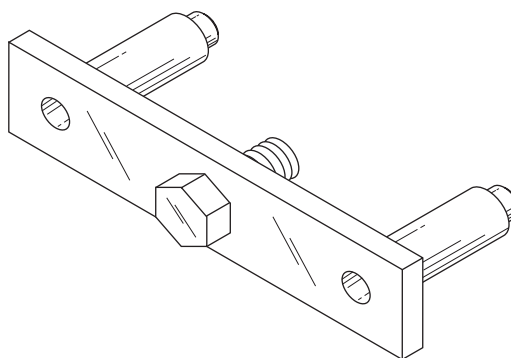
Model: RM500 Road Reclaimer/Soil Stabilizer

Essential Tool

Warranty: None

NEW TOOL

- Used to remove and install spring housing on rotor brake
- Used with $\frac{9}{16}$ inch socket and torque wrench
- Tool rods engage two holes in spring housing for easy removal and installation
- Press and mandrel (dealer supplied) must be used to compress disc springs before using tool to loosen or tighten spring housing
- Made from SAE1020M Steel for long service life



**Brake and
Steering Systems**

Hydraulic System Tools

**Hydraulic Component
Disassembly and Assembly**

**Motor Grader Controls,
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**Loader Lift Arm and
Excavator Implement**

**Implements, Frame,
Hitch and Suspension**

**New tools since
the printing of the
2009 Dealer Service
Tools Catalog**

318-2943 Brake Alignment Tool Group

SMCS Code: 5255-016, 012
Model: 770, 772, 773, 775, & 777 Off-Highway Trucks
Essential Tool
Warranty: Six Months

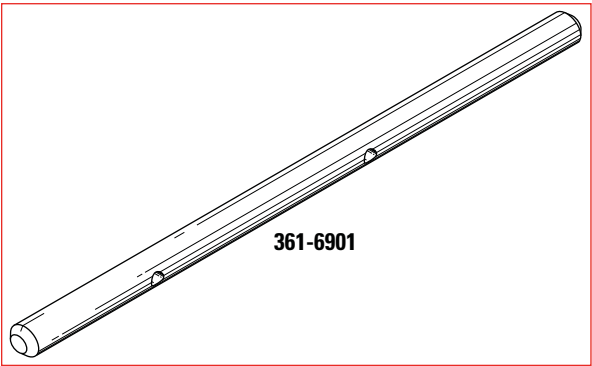
NEW TOOL

- Used to precisely align plates and friction discs; helps eliminate damage of brake pack and mating components during brake assembly—helps ensure proper brake operation
- Versatile tool group can be easily configured to fit several different brake assemblies
- Simplifies assembly and reduces installation time
- Made of lightweight aluminum, for ease of handling
- For easy identification, aluminum components are stamped with the identification mark A, B, C, D, E, F, H, or J
- Tool assembly chart in NEHS1004 Tool Operating Manual provides precise assembly instructions for each application
- For convenience, each component is attached to main fixture assembly with a single size socket head cap screw
- Tool Group includes protective storage case 51 x 51 x 51 cm (20.0 x 20.0 x 20.0 in)

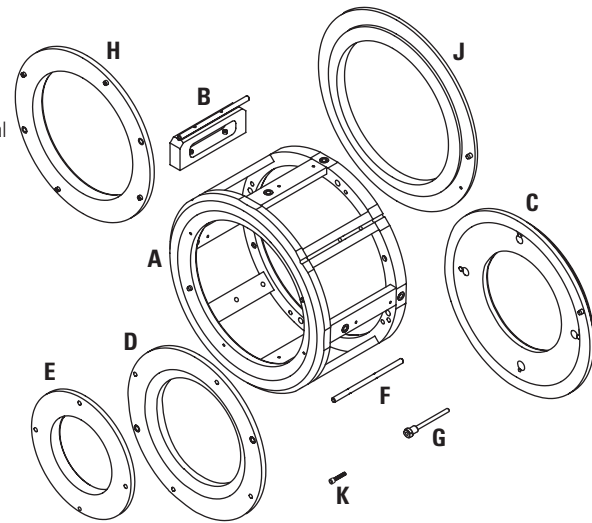
References

NEHS1004, Tool Operating Manual, 318-2943 Brake Alignment Tool for 773, 775, and 777 Off-Highway Trucks
REN8273, 770/772 Off-Highway Truck, Disassembly and Assembly Manual
REN8286, 773/775F Off-Highway Truck, Disassembly and Assembly Manual
REN8312, 777F Off-Highway Truck, Disassembly and Assembly Manual

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.



Service/Repair Parts		
Part No.	Description	Qty.
292-3211	Brake Alignment Tool	1
361-6901	Rod (Item F)	1
169-7372	Storage Container (bolts)	1
318-2927	Storage Case Foam Insert	1
	NEEG3102 Decal	1



Tooling Chart			
Item	Description	Qty.	Used On
A	Fixture Assembly	1	All
B	Adapter Assembly	4	775 Rear (O.C.), 775 Rear (I.C.), 777 Rear (O.C.), 777 Rear (I.C.)
C	Plate Assembly	1	770 Rear (O.C.), 772 Rear (O.C.), 773 Rear (O.C.), 775 Rear (O.C.), 777 Front (I.C.), 777 Rear (O.C.)
D	Plate Assembly	1	770 Rear (I.C.), 772 Rear (I.C.), 773 Rear (I.C.), 777 Front (I.C.)
E	Plate Assembly	1	777 Front (I.C.)
F	Rod	4	770 Rear (O.C.), 772 Rear (O.C.), 773 Rear (O.C.), 770 Rear (I.C.), 772 Rear (I.C.), 773 Rear (I.C.)
G	Guide Pin Assembly	4	770 Rear (O.C.), 772 Rear (O.C.), 773 Rear (O.C.), 777 Front (O.C.)
H	Plate Assembly	1	775 Rear (I.C.), 777 Front (O.C.)
J	Plate Assembly	1	770 Rear (I.C.), 772 Rear (I.C.), 773 Rear (I.C.)
K	Socket Head Screw ¹	20	All - Quantity used varies per application

(O.C.) = Out-of-Chassis.

(I.C.) = In-Chassis.

¹ McMaster-Carr part number 91251A346, 10-32 x 22.2 mm (.875 in) long.

Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
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Loader Lift Arm and
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Implements, Frame,
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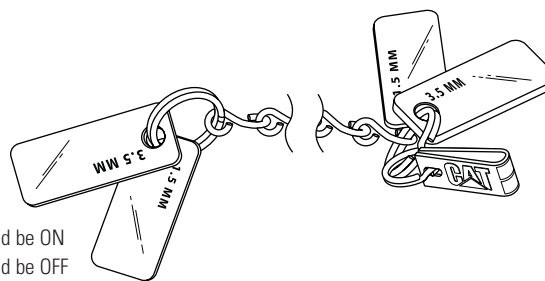
New tools since
the printing of the
2009 Dealer Service
Tools Catalog

338-3572 Shim Kit

SMCS Code: 4269-025
Model: 966H and 972H Wheel Loaders
Warranty: Six Months

NEW TOOL

- Used to check and set adjustment of brake light switch on machines with dual brake pedals
- With 3.5 mm (.14 in) thick shims installed under pedal heel, brake lights should be ON
- With 1.5 mm (.06 in) thick shims installed under pedal heel, brake lights should be OFF
- Brake light switch adjustments are simultaneously done with shims in place under both pedals
- Shim sets are connected by a 50.2 cm (19.8 in) long chain which organizes the tooling yet allows both pedals to be checked at the same time
- Each shim is stamped by size for easy identification
- Steel components are plated for corrosion resistance and long service life



Reference

REN8855, Testing and Adjusting, 966H Wheel Loader and 972H Wheel Loader

Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
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Loader Lift Arm and
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Implements, Frame,
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New tools since
the printing of the
2009 Dealer Service
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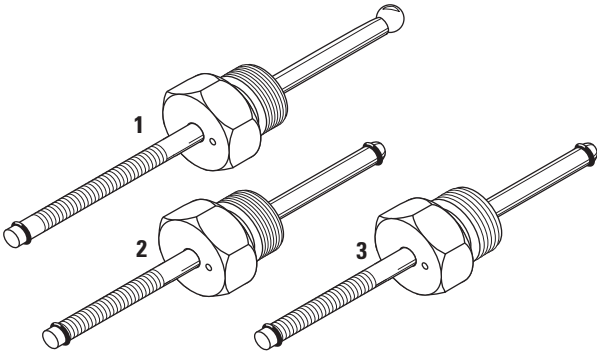
Disc Brake Wear Gauges

SMCS Code: 7473-040
Model: See below
Essential Tool
Warranty: Six Months

NEW TOOL

- Used to check brake disc wear on service brakes
- May be used with 1U-7425 Displacement Gauge Assembly for measurement reading
- Installed in place of brake inspection plug
- Service/Repair Part: 6V-5722 O-ring Seal

NOTE: A measurement of installed stack height of brake disc pack should be taken and recorded with brakes applied after new discs have been “run in.” Measurements should again be taken at prescribed intervals. If difference between initial and subsequent measurements exceed machine specifications, the brake discs should be replaced.



Item	Part No.	Overall Length	Hex Size	Thread Size	Tip Style	Model
1	160-1726	158.0 mm (6.22 in)	25.4 mm (1.0 in)	7/8-14	Ball nose	D350E, D400E, 735, and 740 Articulated Trucks; 797 and 797B Off-highway Trucks
2	344-9164	135.0 mm (5.31 in)	25.4 mm (1.0 in)	7/8-14	Bullet nose	733F, 775F, and 777F Off-highway Trucks
3	345-7976	135.0 mm (5.31 in)	25.4 mm (1.0 in)	3/4-16	Bullet nose	770 and 772 Off-highway Trucks

Brake and
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Hydraulic System Tools

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308-4547 Valve Adjuster

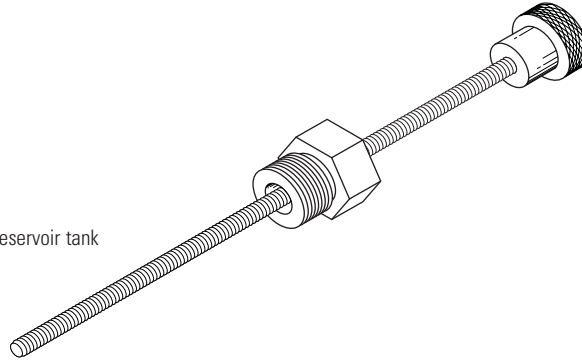
SMCS Code: 5051, 6501

Model: E-Series Backhoe Loaders

Warranty: Six Months

NEW TOOL

- Used to manually lower boom during engine stall
- Temporarily replaces boom lower pilot line on main control valve
- Remove pilot line and thread plug into control valve
- Slowly turn knob to depress internal valve stem and relieve oil back into reservoir tank
- Allows controlled lowering of boom without a power source



Brake and
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335-3395 Spanner Wrench Assembly

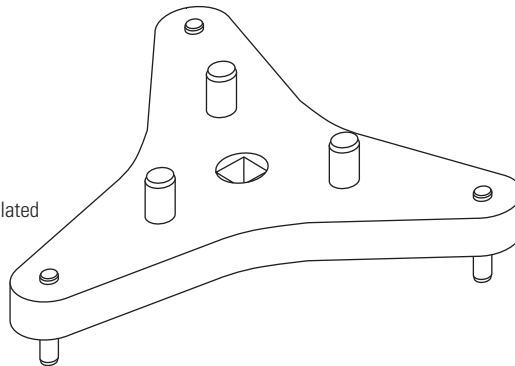
SMCS Code: 5077

Model: PL61 Pipelayer

Warranty: Six Months

NEW TOOL

- Used to remove and install 297-6401 Accumulator on PL61 Pipelayer
- Used with ½ inch square drive ratchet wrench
- Dual-purpose tool can also be used to set bevel gear backlash on D250/725 Articulated Dump Trucks (can be used to replace 149-5167 Spanner Wrench)
- Positive engagement (three pins) reduces risk of damage to accumulator
- Black oxide coated to resist corrosion
- Use 4F-2954 Pin and 8E-8439 Dowel to replace damaged parts



Brake and
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Hydraulic System Tools

Hydraulic Component
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Implements, Frame,
Hitch and Suspension

341-4073 Spanner Kit

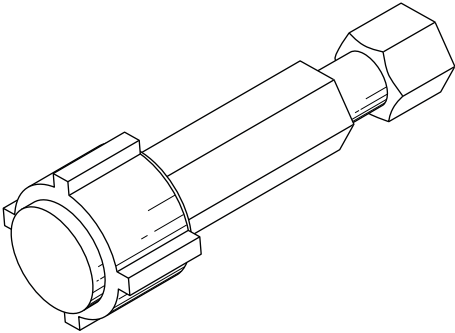
SMCS Code: 5264-011
Model: 416E Backhoe Loader
Essential Tool
Warranty: Six Months

NEW TOOL

- Used to remove and install relief valve in 259-6758 Valve Group
- Used with 6 mm socket wrench (dealer supplied)
- Spanner head fits down inside hydraulic valve body
- Four equally spaced teeth engage relief valve for proper removal and installation
- Includes sealable rust inhibitor bag for proper tool storage

References

REN7164, Service Manual, 414E, 416E, 420E, 422E, 428E, 430E, 432E, 434E, 442E, and 444E Backhoe Loaders Machine Systems
KEN7659, Service Manual, 416E, 420E, and 430E Backhoe Loaders Machine Systems
REN8043, Service Manual, 422E, 428E, 432E, 434E, 442E, and 444E Backhoe Loaders Machine Systems



Brake and
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Hydraulic System Tools

Hydraulic Component
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Excavator Implement

Implements, Frame,
Hitch and Suspension

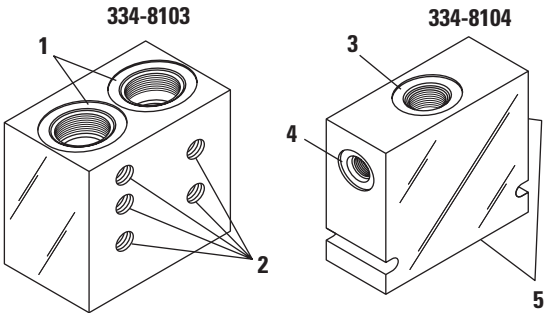
New tools since
the printing of the
2009 Dealer Service
Tools Catalog

Line Relief Valve Test Manifolds

SMCS Code: 4322-025, 5117-0360
Model: 963D and 973D Track-Type Loaders
Essential Tool
Warranty: Six Months

NEW TOOL

- Used to test and adjust cartridge type relief valves with -6, -12, and -16 ORFS threads
- Used with cancelled 1U-8900 Cartridge Relief Valve Tester and cancelled 4C-4441 Cartridge Relief Valve Tester
- 334-8103 Valve Test Manifold is used for testing 973D Track Type Loader relief valves
- 334-8104 Valve Test Manifold is used for testing 963D Track Type Loader relief valves
- Simplifies testing — significantly reduces time spent testing each relief valve
- Made from durable hardened steel (RKW C34-39) with black oxide coating for corrosion resistance



Item	Port Fitting
334-8103 Valve Test Manifold	
1	Two ORFS-16 ports (1 $\frac{5}{16}$ -12)
2	Five $\frac{1}{4}$ -18 NPTF ports
334-8104 Valve Test Manifold	
3	One ORFS-12 ports (1 $\frac{5}{16}$ -12)
4	One ORFS-6 port ($\frac{9}{16}$ -18)
5	Two ORFS-2 ports (1 $\frac{5}{16}$ -12) not visible

Brake and
Steering Systems

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Vacuum Cart Groups

SMCS Code: 7500-574
Model: All Models
Warranty: Manufacturer's

European Union compliant, CE marked

NEW TOOL

- Used to vacuum oil from reservoir of small equipment, such as skidsteer loaders
- Empties oil pan, through drain hole, in a matter seconds over conventional (gravity flow) method
- Excellent for use on CSA's or maintenance contracts to evacuate oil reservoirs quickly and efficiently
- Huge time savings for dealerships (some small machines can take as long as twenty minutes to completely drain oil using conventional methods)
- Also provides an efficient means of cleaning up wastes such as contaminated water, oil, antifreeze, fuel, or other fluids
- Easy to operate: portable unit rolls easily on rubber wheels and uses pressurized air for vacuum power
- Lightweight, compact size makes it easy to maneuver and store
- Operates on shop or portable air systems
- Sturdy, polished aluminum construction with durable galvanized fittings and brass valves
- Two models provide coverage for different operational needs such as shop or service truck use
- Does not filter fluids to remove contaminants



Warranty Information

Spillpro
1075 E. Hwy. 40
Vernal, UT 84078
Phone: (702) 573-5119
Fax: (435) 789-7066
Email: info@thespillpro.com

	299-5610 Vacuum Cart Group	299-5612 Vacuum Cart Group
Capacity	170.3 L (45 gal)	49.2 L (13 gal)
Height	147.3 cm (58 in)	119.4 cm (47 in)
Weight	27.2 kg (60 lb) empty	15.9 kg (35 lb) empty
Required Air Supply	82.7 kPa (90 PSI) at 849.5 lpm (30 cfm)	82.7 kPa (90 PSI) at 849.5 lpm (30 cfm)
Suction Produced	40.6 kPa (12 in Hg)	40.6 kPa (12 in Hg)
Suction Hose	3.2 cm (1.25 in) diameter, 213.4 cm (7.0 ft) long	3.2 cm (1.25 in) diameter, 213.4 cm (7.0 ft) long
Suction Wand	106.7 cm (42 in) long	106.7 cm (42 in) long
Disposal Hose	3.2 cm (1.25 in) diameter, 152.4 cm (5.0 ft) long	3.2 cm (1.25 in) diameter, 152.4 cm (5.0 ft) long
Decal	NEEG2539 - CAT Logo	NEEG2539 - CAT Logo
Decal	NEEG2735 - CE Compliant	NEEG2735 - CE Compliant

Brake and
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Hitch and Suspension

348-9503 DHCR1500 Flowmeter

348-9504 HV1500 Load Valve

SMCS Code: 0774, 0784

Model: All Models

Warranty: Six Months

NEW TOOL

- Used together to measure hydraulic flow, pressure, and temperature in any hydraulic system
- Helps diagnosis problems within a hydraulic system
- Meets EU requirements (No CE markings required)

348-9503 DHCR1500 Flowmeter

- Flow rated up to 1500 lpm (400 gpm)
- Pressure rated up to 420 bar (6000 psi)
- Code 62 four-bolt flange connections
- Accuracy of $\pm 1\%$ of indicated reading
- Remote inputs: flow, temperature - 2, pressure - 1, speed - 1
- Quickly checks hydraulic pumps, motors, valves, cylinders, and hydrostatic transmissions
- Low battery power consumption with automatic "power off" feature
- Infra-red photo-tachometer with "on target" indicator
- Can measure flow in both directions (uni-directional when used with 348-9504 HV1500 Load Valve)

348-9504 HV1500 Load Valve

- Progressive pressure control
- High-strength aluminum body rated up to 420 bar (6000 psi)
- Includes connecting flange, seals, and bolts for use with 348-9503 DHCR1500 Flowmeter
- Pilot operated, over-pressure internal bypass valve
- Includes spare burst discs
- Uni-directional flow

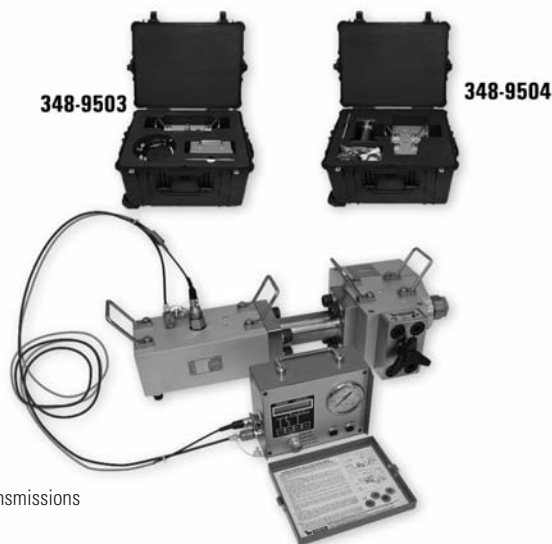
Repair Information

Webster Instruments
1290 East Waterford Avenue
Milwaukee, WI 53207

Phone: (414) 769-6400

Fax: (414) 769-6591

A "Return Material Authorization" number is required.



348-9503 DHCR1500 Flowmeter

Item	Qty.
DHCR1500 Unit	1
Cable Hose Assembly	1
LT1500-FR-F-S-6 Unit	1
Carry Case	1

348-9504 HV1500 Load Valve

Item	Qty.
HV1500 Load Valve Unit	1
Spool	1
Carry Case	1

Brake and
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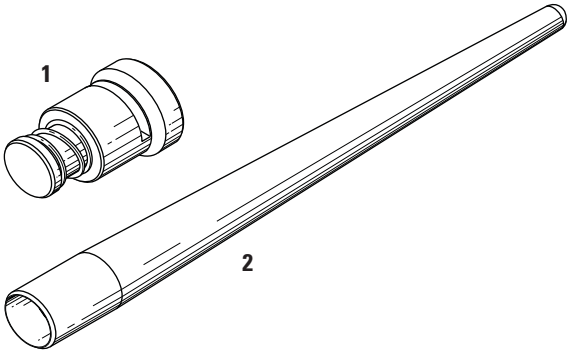
STOR and ORFS O-Ring Seal Installers

SMCS Code: 0784
Model: Most Caterpillar Models
Essential Tool
Warranty: Six Months

NEW TOOL

- Used to install O-ring seals onto STOR and ORFS style fittings
- Helps prevent damage to the seal during assembly
- Specific tools for each size fitting for proper seal installation
- ORFS seal installers use a spring-loaded design to install O-ring seals into end groove of fitting
- STOR seal installers use a smooth tapered design with a recess for sliding O-ring seals past threads and into groove of fitting

(1) ORFS Seal Installer		
Part No.	Description	Fitting Size
179-6884	Seal Installer	ORFS -4
179-6885	Seal Installer	ORFS -5
179-6886	Seal Installer	ORFS -8
179-6887	Seal Installer	ORFS -10
179-6888	Seal Installer	ORFS -12
179-6889	Seal Installer	ORFS -16
179-6890	Seal Installer	ORFS -20
179-6891	Seal Installer	ORFS -24



(2) STOR Seal Installer		
Part No.	Description	Fitting Size
336-0739	Seal Installer	STOR -3
336-0740	Seal Installer	STOR -4
336-0741	Seal Installer	STOR -6
336-0742	Seal Installer	STOR -8
336-0744	Seal Installer	STOR -10
336-0750	Seal Installer	STOR -12
336-0784	Seal Installer	STOR -16
371-9041	Seal Installer	STOR-12

This article has changed since the printing of the 2009 Dealer Service Tools Catalog.

Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

Implements, Frame, Hitch and Suspension

New tools since the printing of the 2009 Dealer Service Tools Catalog

340-8014 Sleeve

SMCS Code: 5051-016; 5124-016

Model: 414E, 416E, 420E, 422E, 428E, 430E, 432E, 434E, 442E, 444E, and 450E Backhoe Loaders

Essential Tool

Warranty: Six Months

NEW TOOL

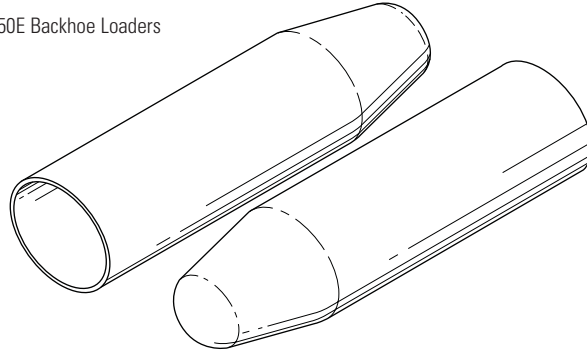
- Used to install lip seal in hydraulic control valve
- Made from hardened steel (RKW C28-32) with a chrome plated finish
- Fits over control valve spool and seal is installed over tool and into groove in spool
- Helps prevent damage to new seals during installation

References

REN6485; 414E, 416E, 420E, 422E, 428E, 430E, 432E, 434E, 442E and 444E Backhoe Loaders Machine Systems

KENR7659; 416E, 420E and 430E Backhoe Loaders Machine Systems

KENR5491; 450E Backhoe Loader Machine Systems



Brake and
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Implements, Frame,
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307-7586 Gauge Group

321-5932 Gauge Group

SMCS Code: 7562, 5721
Model: 12M, 14M, 16M, and 24M Motor Graders
120M, 140M, and 160M Motor Graders

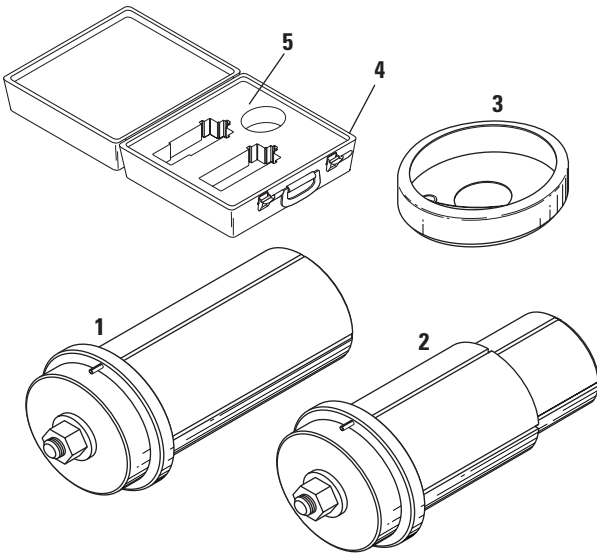
Essential Tool
Warranty: Six Months

NEW TOOL

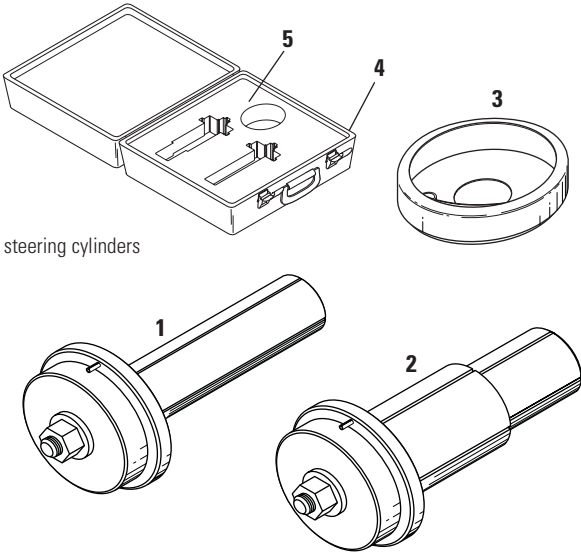
- Used to precisely measure center-to-center distances between rod ends of steering cylinders
- Used with two 5P-8637 V-Blocks
- Measures cylinders in closed and open position
- Obtaining accurate measurements are necessary after servicing cylinders
- Measurements are necessary to input trim values into ECM (controls steering logic)
- Each gauge group includes two pins; a stepped gauge pin for cylinder rod ends and a straight gauge pin for cylinder tube ends and a precision measuring tape

Reference

NEHS1038, Tool Operating Manual, 307-7586 PSC Gauge Group, 321-5932 PSC Gauge Group, Used For Manual Length Measurement of Position Sensing Steering Cylinders on M-Series Motor Graders



321-5932 PSC Gauge Group for 24M Motor Grader		
Item	Part No.	Description
1	321-5644	Gauge Pin Assembly
2	321-5646	Gauge Pin Assembly
3	307-6224	Pi Tape (with case)
4	4C-3975	Storage Case
5	307-7584	Foam Insert
Not shown		
NEEG3107 Decal		
NEHS1038 Tool Operating Manual		



307-7586 PSC Gauge Group for 120M, 140M, and 160M Motor Graders		
Item	Part No.	Description
1	307-6222	Gauge Pin Assembly
2	307-6223	Gauge Pin Assembly
3	307-6224	Pi Tape (with case)
4	4C-3975	Storage Case
5	307-7585	Foam Insert
Not shown		
NEEG3106 Decal		
NEHS1038 Tool Operating Manual		

Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

Implements, Frame, Hitch and Suspension

238-8670 Socket Screw Wrench

SMCS Code: 5051-015

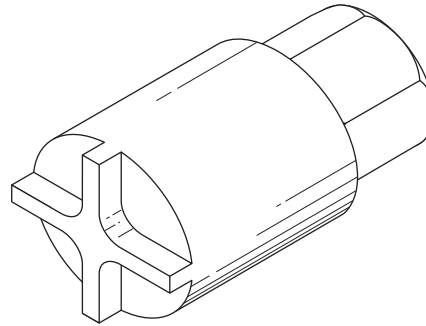
Model: D3G, D4G, and D5G Hystat Track-Type Tractors

Essential Tool

Warranty: Six Months

NEW TOOL

- Used to disassemble and assemble hydraulic control valve
- Used with 13 mm socket
- Required for proper disassembly and assembly of valve spool assembly
- Machined, four-point tang securely engages screw in valve spool
- Helps prevent damage to valve
- Black oxide coated to resist corrosion



Reference

REN7484, D3G, D4G and D5G Hystat Track-Type Tractors Machine Systems Disassembly and Assembly, Bank Valve (Main Hydraulic) - Disassemble

Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and Assembly

Motor Grader Controls,
Cable Control and Winch

Loader Lift Arm and
Excavator Implement

Implements, Frame,
Hitch and Suspension

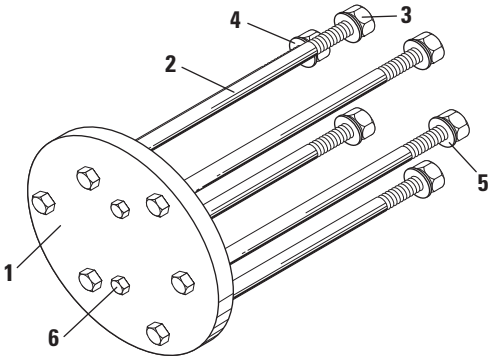
FT3153 Hoist Cylinder Puller Assembly

SMCS Code: 5102-011
Model: 770, 772, 773F, 775F, and 777F Off-Highway Trucks
Essential Tool
Warranty: None

NEW TOOL

- Used to separate lower eye of hoist cylinder from axle group
- Used with 6V-3160 Hydraulic Cylinder Group
- Make puller plate from SAE 4140 Steel, hardened to RKW C27-33

Item	Part No.	Description	Qty.
1	—	Puller Plate	1
2	6V-6546	Bolt, 1/2-13 x 356 mm (14 in) long	6
3	1F-7958	Full Nut, 1/2-13	6
4	5P-1076	Hard Washer, 13.5 mm ID x 30 mm OD	3
5	5P-8245	Hard Washer, 13.5 mm ID x 25.5 mm OD	3
6	6V-1943	Bolt, 3/8-16 x 28.6 mm (1.13 in) long	2



Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and Assembly

Motor Grader Controls,
Cable Control and Winch

Loader Lift Arm and
Excavator Implement

Implements, Frame,
Hitch and Suspension

159-3327 Hex Wrench

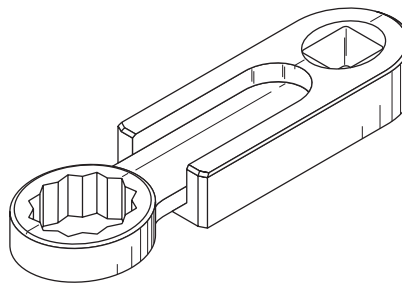
SMCS Code: 5070-011

Model: Skid Steer Loaders, Multi-terrain Loaders

Warranty: Six Months

NEW TOOL

- Used to remove and install hydrostatic pump mounting bolts
- Used with ½ inch drive extension, ratchet wrench and/or torque wrench
- 12 point, 21 mm box end wrench with ½ inch drive
- Extension distance 76.2 mm (3.0 in) — center of square drive to center of wrench for ease of torque calculations
- Allows easier access to loosen, remove, and tighten pump mounting bolts
- Heavy-duty welded steel construction designed for maximum torque of 244 N-m (180 lb ft)
- Heat-treated for added durability



Reference

KENR5114, 236B, 246B, 246C, 252B, 256C, 262B, 262C and 272C Skid Steer Loaders, Engine Supplement, Disassembly and Assembly, Engine Remove and Install

KENR5115, 246C, 256C, 262C and 272C Skid Steer Loaders, Power Train, Disassembly and Assembly, Piston Pump (Hydrostatic)

KENR5197, 277C, 287C and 297C Multi Terrain Loaders, Power Train, Disassembly and Assembly, Piston Pump (Hydrostatic)

KENR8831, 279C, 289C and 299C Compact Track Loaders, Power Train, Disassembly and Assembly, Piston Pump (Hydrostatic)

REN2857, 216, 226 and 228 Skid Steer Loaders, Power Train, Disassembly and Assembly, Piston Pump (Hydrostatic)

REN2868, 236, 246, 248, 252 and 262 Skid Steer Loaders, Engine Supplement, Disassembly and Assembly, Engine Remove and Install

REN2872, 236, 246 and 248 Skid Steer Loaders, Power Train, Disassembly and Assembly, Piston Pump (Hydrostatic)

REN4808, 236, 246, 252 and 262 Skid Steer Loaders, Power Train, Disassembly and Assembly, Piston Pump (Hydrostatic)

REN4814, 267, 277 and 287 Multi Terrain Loaders, Engine Supplement, Disassembly and Assembly, Engine Remove and Install

REN4833, 216 and 232 Skid Steer Loaders, 3024 Engine Supplement, Disassembly and Assembly, Engine Remove and Install

REN4834, 226 and 242 Skid Steer Loaders, Power Train, Disassembly and Assembly, Piston Pump (Hydrostatic)

REN4843, 226 and 242 Skid Steer Loaders, Engine Supplement, Disassembly and Assembly, Engine Remove and Install

REN4851, 247 and 257 Multi Terrain Loaders, 3034 Engine Supplement, Disassembly and Assembly, Engine Remove and Install

REN4863, 236B, 236B2, 246B, 252B, 252B2 and 262B Skid Steer Loaders, Engine Supplement, Disassembly and Assembly, Engine Remove and Install

REN4864, 236B, 236B2, 246B, 252B, 252B2 and 262B Skid Steer Loaders, Power Train, Disassembly and Assembly, Piston Pump (Hydrostatic)

REN4873, 247B, 247B2, 257B and 257B2 Multi Terrain Loaders, Engine Supplement, Disassembly and Assembly, Engine Remove and Install

REN4874, 247B, 247B2, 257B and 257B2 Multi Terrain Loaders, Power Train, Disassembly and Assembly, Piston Pump (Hydrostatic)

REN4884, 267B, 277B and 287B Multi Terrain Loaders, Machine Systems, Disassembly and Assembly, Piston Pump (Hydrostatic)

REN4893, 216B, 216B2, 226B, 226B2, 232B, 232B2, 242B and 242B2 Skid Steer Loaders, Engine Supplement, Disassembly and Assembly, Engine Remove and Install

REN4894, 216B, 226B, 232B and 242B Skid Steer Loaders, Power Train, Disassembly and Assembly, Piston Pump (Hydrostatic)

REN8743, 248B and 268B Skid Steer Loaders, Engine Supplement, Disassembly and Assembly, Engine Remove and Install

REN8744, 248B and 268B Skid Steer Loaders, Power Train, Disassembly and Assembly, Piston Pump (Hydrostatic)

Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and Assembly

Motor Grader Controls,
Cable Control and Winch

Loader Lift Arm and
Excavator Implement

Implements, Frame,
Hitch and Suspension

FT3154 Check Valve Socket

SMCS Code: 5067-010

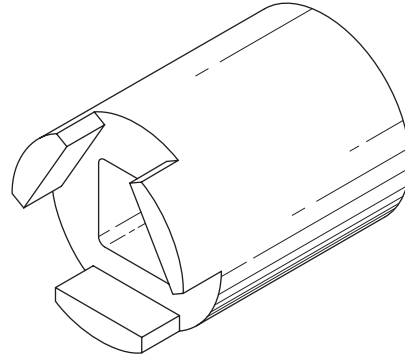
Model: Most Caterpillar Excavators

Essential Tool

Warranty: None

NEW TOOL

- Used to remove and install 184-3833 Valve Assembly in 173-4672 Check Valve
- Made from 1U-7897 Socket
- Three tangs engage valve assembly during removal and installation
- Used with ½ inch square drive extension



Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and Assembly

Motor Grader Controls,
Cable Control and Winch

Loader Lift Arm and
Excavator Implement

Implements, Frame,
Hitch and Suspension

FT3143 Spanner Wrench Adapter Assembly

SMCS Code: 5077-010

Model: 924H, 924Hz, 928Hz, and 930H Wheel Loaders

Essential Tool

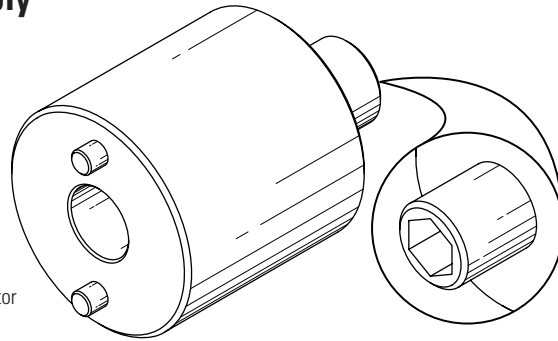
Warranty: None

NEW TOOL

- Used to remove and install 283-4418 Ride Control Accumulators
- Used with ½ inch Allen wrench socket and torque wrench
- Required to properly tighten accumulator to torque specification
- Two 6 mm (.24 in) diameter pins in tool engage holes in bottom of accumulator

Reference

KENR7617; 924H, 924Hz, 928Hz, and 930H Wheel Loaders, Machine Systems, Disassembly and Assembly



Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and Assembly

Motor Grader Controls,
Cable Control and Winch

Loader Lift Arm and
Excavator Implement

Implements, Frame,
Hitch and Suspension

361-1591 Cutter

361-1593 Adapter Assembly

SMCS Code: 5453-017

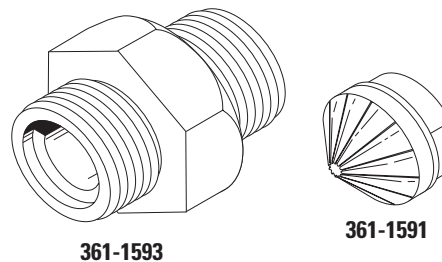
Model: 311C, 312C, 313C, 314C, 315C, 311D, and 314D Excavators

Essential Tool

Warranty: Six Months

NEW TOOL

- Used to repair/recondition worn valve seats in hydraulic control valve body (line relief valve seats only)
- Used with 229-3612 Relief Valve Tool Assembly
- Restores valve seat to factory specifications
- No need to remove valve; repair is performed "in-chassis"
- In most cases, valve assembly is repaired and not replaced —saves time and expense
- 361-1591 Cutter features 10 teeth at a 117 degree angle with a zero degree rake
- 361-1593 Adapter Assembly threads into 229-3612 Relief Valve Tool and then attaches to line relief port on main hydraulic control valve



Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and Assembly

Motor Grader Controls,
Cable Control and Winch

Loader Lift Arm and
Excavator Implement

Implements, Frame,
Hitch and Suspension

Reference

NEHS0871, Repairing Line Relief Valve Seats Using the 229-3612 Hydraulic Valve Seat Repair Kit

346-6598 Adapter Assembly

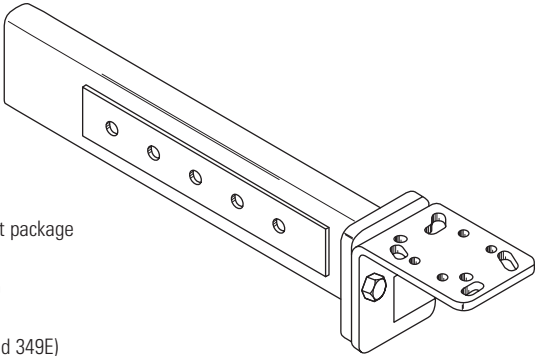
SMCS Code: 5070-010
Model: 320E, 324E, 329E, 336E, and 349E Excavator
Essential Tool
Warranty: Six Months
European Union compliant, CE marked

NEW TOOL

- Used to remove hydraulic pump on E-series excavators with Tier 4 after-treatment package
- Used with 226-2380 Multi-Purpose “C” Style Lifting Bracket Assembly
- Tool eliminates need to remove after-treatment package prior to removing pump
- Mounts to suction port on bottom of pump
- Dual purpose tool works with horizontally mounted pumps (320E, 324E, 336E, and 349E) and pumps mounted on an angle (329E)

Reference

NEHS1103, Tool Operating Manual



Working load limit	1366 kg (3000 lb)
Weight	29 kg (64 lb)
Dimensions (L x H x W)	883.6 x 184.8 x 139.7 mm (34.7 x 7.27 x 5.5 in)

Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and Assembly

Motor Grader Controls,
Cable Control and Winch

Loader Lift Arm and
Excavator Implement

Implements, Frame,
Hitch and Suspension

369-9937 Hex Wrench, 30 mm

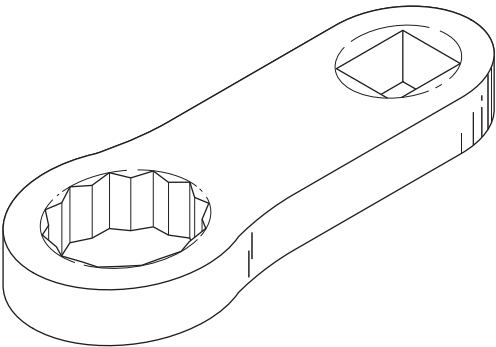
SMCS Code: 5070
Model: 966H Wheel Loader
Essential Tool
Warranty: Six Months

NEW TOOL

- Used to tighten hydraulic pump bolts
- Fits into limited clearance around bolt heads (sockets or other tools will not fit)
- Used with a 3/4 inch square drive 9U-5007 Torque Wrench or equivalent
- Essential for applying proper bolt torque

Reference

REN8881-00, Hydraulic Pump Removal



Hex	30 mm, 12 point
Square drive	3/4 in
Center-to-center distance of square drive to socket	76.2 mm (3.0 in)

Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and Assembly

Motor Grader Controls,
Cable Control and Winch

Loader Lift Arm and
Excavator Implement

Implements, Frame,
Hitch and Suspension

316-1752 Pin Positioner Assembly

SMCS Code: 6107-010
Model: 994F, 993K, 992K, 992G Wheel Loaders
Warranty: Six Months

Working load limit	148 kg (325 lb)
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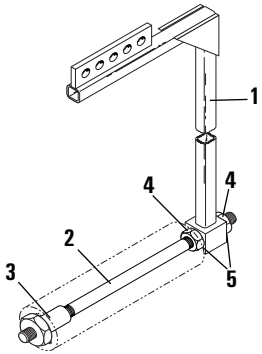
European Union compliant, CE marked

NEW TOOL

- Used to lift and lower large wheel loader linkage pins into position during disassembly and assembly
- Used on 321 to 634 mm (12.6 to 24.9 in) long linkage pins with 34 to 40 mm (1.34 to 1.58 in) diameter center hole
- 331-1205 Retainer Nut fits recess in center hole on linkage pins
- Used with appropriate lifting device and 189-0408 Screw Pin Shackle (dealer supplied)
- Multiple top plate mounting holes are used to adjust center of gravity for different weight linkage pins

Reference

REN6321, 994F Wheel Loader Machine Systems
NEHS1037, Tool Operating Manual, 316-1752 Pin Positioner Lifting Bracket



Item	Part No.	Description	Qty.
1	—	Frame	1
2	316-1753	Rod	1
3	331-1205	Retainer Nut Assembly	1
4	3K-9770	Full Nut	2
5	4K-0684	Hard Washer	2

Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and Assembly

Motor Grader Controls,
Cable Control and Winch

Loader Lift Arm and
Excavator Implement

Implements, Frame,
Hitch and Suspension

340-4318 Puller Assembly

SMCS Code: 7051

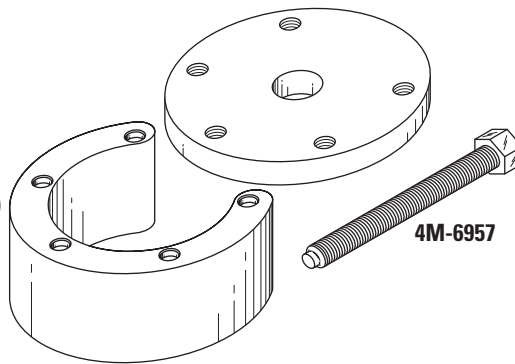
Model: 320D FM Excavator

Essential Tool

Warranty: Six Months

NEW TOOL

- Used to remove 4I-4812 Pin Assembly from boom foot
- Used with five 4M-6957 Forcing Bolts, $\frac{5}{8}$ -11 x 17.8 cm (7 in) long (dealer supplied)
- Tool consists of two parts: puller plate and spacer
- Puller plate used with forcing screws to partially remove pin
- Forcing screws are then loosened and spacer is inserted to allow puller plate to fully remove pin from boom
- Steel tools are black oxide coated to resist corrosion
- Puller plate has five threaded holes and is hardened to provide long service life
- Opening in spacer fits over pin without removing puller plate and features locator holes for correct forcing bolt alignment



Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and Assembly

Motor Grader Controls,
Cable Control and Winch

Loader Lift Arm and
Excavator Implement

Implements, Frame,
Hitch and Suspension

Linkage Pin and Sleeve Bearing Removal and Installation Tools

SMCS Code: 6107, 6108, 6119, 5051, and 7054-010, 017

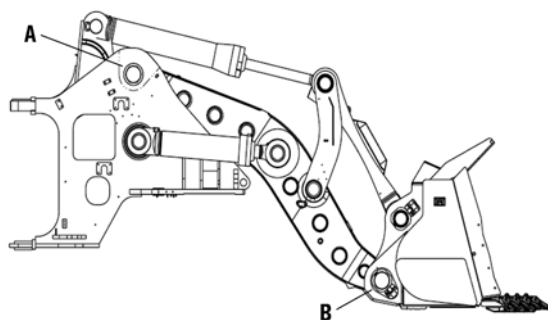
Model: 992G, 992K, 993K Wheel Loader

Warranty: Six Months

NEW TOOL

- Used to remove and install sleeve bearing linkage pins
- Used with service presses: 9U-7764 (150 ton), 6V-2073 (100 ton), 6V-4131 (80 ton), and 3P-2228 (60 ton)
- Special receiving sleeve assemblies are used with other hydraulic service tools to remove and install linkage pins
- Sleeves work especially well for handling pins weighing as much as 284 kg (626 lb) and 146 cm (4.8 ft) long which are located high on the machine
- Retaining bolts are built into sleeves allowing linkage pin to be locked into sleeve when working overhead
- Receiving sleeve assembly is easily suspended with eyebolts
- Complete range of sleeve bearing puller plates and installer plates are available for servicing each pin location
- Threaded rod and speed nut provides time saving means of pulling large pins
- Refer to charts for tools required for each pin location (only tooling required for the new SBC pins is listed)

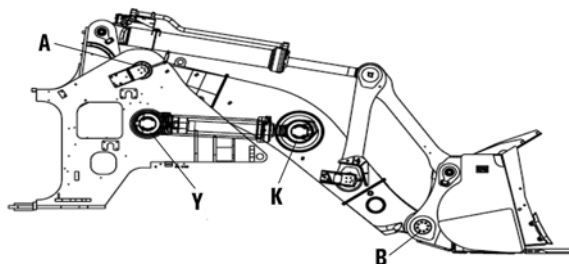
992G SBC Linkage Pin Locations



Linkage Pin Installation and Removal Tooling			
Part No.	Description	A	B
9U-7763	Puller Rod, 2-12-2A thd	1	1
9U-7764	Bushing	1	1
7Y-0725	Hard Washer	2	2
3E-3879	Eyebolt, M16x2	1	1
8T-7781	Nut	2	2
318-2121	Puller Assembly	1	1

Retainer Extraction Tooling			
Part No.	Description	A	B
322-5589	Extractor	1	1
7B-2289	Bolt, 1 1/4-12, 57.15 mm	1	1
009-3020	Washer, 1 1/4	4	4

992K SBC Linkage Pin Locations



Linkage Pin Installation Tooling					
Part No.	Description	A	B	K	Y
289-0013	Puller Rod, 1 1/2-12	-	1	-	-
8H-3390	Threaded Nut, 1.5 -12	-	4	-	-
9U-7763	Stud Puller Rod, 2-12 in.	1	-	1	1
322-0102	Adapter Assembly Spacer	-	-	1	1
9U-7764	Bushing	1	-	1	1
6V-2073	Bushing	-	1	-	-
7Y-0725	Hard Washer	2	-	2	2
3S-6162	Hard Washer	-	4	-	-
318-2117	Inside Plate Installer	-	1	-	-
8T-3220	Eyebolt, M12x1.75	-	1	-	-
3E-3879	Eyebolt, M16x2	1	-	1	1
8T-7781	Nut	2	-	2	2
322-0101	Outside Plate Installer	-	1	-	-
318-2121	Sleeve Puller Assembly	1	-	1	1
289-0011	Spacer	-	-	1	1

Linkage Pin Removal Tooling					
Part No.	Description	A	B	K	Y
9U-7763	Puller Rod, 2 in.	1	1	1	1
9U-7764	Bushing	1	1	1	1
7Y-0725	Hard Washer	2	2	2	2
3E-3879	Eyebolt, M16x2	1	1	1	1
8T-7781	Nut	2	2	2	2
318-2121	Puller Assembly	1	1	1	1

Retainer Extraction Tooling			
Part No.	Description	A	B
322-5589	Extractor	1	-
322-5590	Extractor	-	1
2K-0439	Bolt, 1 1/4-12, 88.9 mm	1	-
009-3020	Washer, 1 1/4	4	-
7Y-7992	Bolt, M12 x 1.75, 75 mm	-	1
8T-4223	Washer, M12	-	4

Brake and Steering Systems

Hydraulic System Tools

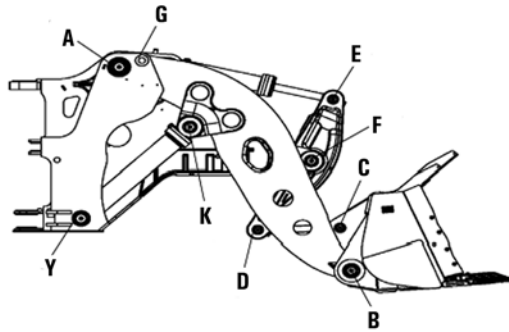
Hydraulic Component Disassembly and Assembly

Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

Implements, Frame, Hitch and Suspension

993K SBC Linkage Pin Locations



Linkage Pin Installation Tooling

Part No.	Description	A	B	C	D	E	F	G	Y	K
289-0013	Puller Rod, 1 1/2-12	1	1	-	-	-	1	-	1	1
289-0008	Puller Rod, 1 1/4-12	-	-	1	1	1	-	1	-	-
7H-7539	Threaded Nut, 1 1/4-12	-	-	4	4	4	-	4	-	-
8H-3390	Threaded Nut, 1.5-12	4	4	-	-	-	4	-	4	4
318-2119	Backup Installation Plate	-	-	1	1	1	-	1	-	-
318-2120	Backup Installation Plate	1	1	-	-	-	1	-	1	1
3P-2228	Bushing	-	-	1	1	1	-	1	-	-
6V-2073	Bushing	1	1	-	-	-	1	-	1	1
146-1799	Hard Washer	-	-	4	4	4	-	4	-	-
3S-6162	Hard Washer	4	4	-	-	-	4	-	4	4
318-2117	Inside Installation Plate	1	1	1	1	1	1	1	1	1
8T-3220	Eyebolt, M12 x 1.75	1	1	1	1	1	1	1	1	1
318-2115	Outside Installation Plate	1	-	-	-	-	-	-	-	-
318-2116	Outside Installation Plate	-	-	-	-	-	-	-	1	-
318-2118	Outside Installation Plate	-	1	1	1	1	1	1	-	1

Retainer Extraction Tooling

Part No.	Description	A	B
322-5590	Extractor	1	1
8T-0646	Bolt, M12 x 1.75, 110 mm	1	-
8T-4223	Washer, M12	4	4
172-9966	Bolt, M12 x 1.75, 65 mm	-	1

Linkage Pin Removal Tooling (Pull)

Part No.	Description	A	B	C	D	E	F	G	Y	K
9U-6698	Puller Rod, 1 1/2 in.	-	-	-	1	1	1	-	1	-
9U-7763	Puller Rod, 2 in.	1	1	-	-	-	1	-	1	1
318-2123	Adapter Ring	1	-	-	-	-	-	-	1	-
318-2122	Adapter Ring	-	1	-	-	-	-	-	-	-
9U-7764	Bushing	1	1	-	-	-	1	-	1	1
6V-2073	Bushing	-	-	1	1	1	-	1	-	-
7Y-0725	Hard Washer	2	2	-	-	-	2	-	2	2
3S-6162	Hard Washer	-	-	2	2	2	-	2	-	-
8T-3220	Eyebolt, M12 x 1.75	1	1	1	1	1	-	1	1	-
3E-3879	Eyebolt, M16 x 2	1	1	-	-	-	1	-	1	1
8T-7781	Nut	2	2	-	-	-	2	-	2	2
8H-3390	Nut	-	-	2	2	2	-	2	-	-
318-2121	Puller Assembly	1	1	-	-	-	-	-	1	-
318-2124	Puller Assembly	-	-	1	1	1	1	-	-	1
318-2125	Puller Assembly	-	-	-	-	-	-	1	-	-

Linkage Pin Removal Tooling (Push)

Part No.	Description	A	B	C	D	E	F	G	Y	K
320-9699	Spacer, 20 mm thick 40 mm ID	-	-	-	-	-	4	-	-	-
320-9701	Spacer, 20 mm thick 53 mm ID	4	-	-	-	-	-	-	4	-
320-9700	Spacer, 40 mm thick 40 mm ID	-	-	-	-	-	4	-	-	-
320-9702	Spacer, 40 mm thick 53 mm ID	4	-	-	-	-	-	-	4	-
1U-5197	Cylinder, 80 ton	-	-	1	-	-	-	1	-	-
318-2127	Push Tube	1	-	-	-	-	-	-	1	-
320-4794	Alignment Rod	1	1	-	-	-	-	-	1	-
318-2128	Push Cylinder Plate	1	1	-	-	-	-	-	1	-
318-2126	Push Insert Plate	1	1	-	-	-	-	-	1	-
320-4790	Push Support Tube	-	1	-	-	-	-	-	-	-
6V-8675	Bolt	4	-	-	-	-	-	-	4	-
9R-2640	Boss	4	-	-	-	-	-	-	4	-
138-7575	Bracket Link	4	-	-	-	-	-	-	4	-
6V-2073	Bushing	1	1	-	-	-	-	-	1	-
320-4792	Push	-	-	1	-	-	-	-	-	-
6V-4131	Cap Assembly Load	-	-	1	-	-	-	1	-	-
320-9698	Alignment Rod	-	-	1	-	-	1	1	-	-
320-4793	Push	-	-	-	-	-	-	1	1	-
320-4791	Push	-	-	-	-	-	-	-	1	-
3H-7654	Hard Washer	4	-	-	-	-	-	-	4	-
3P-2228	Insert Plain	-	-	-	-	-	1	-	-	-
6V-8336	Bolt, M12	3	3	-	-	-	-	-	3	-
8T-4194	Bolt, M12 x 1.75, 50 mm	1	1	-	-	-	-	-	1	-
267-4850	Bolt, M12 x 1.75, 55 mm	6	6	-	-	-	-	-	6	-
172-9966	Bolt, M12 x 1.75, 65 mm	1	1	-	-	-	-	-	1	-
7X-0622	Hard Washer, M13 ID	10	10	-	-	-	-	-	10	-
3E-3879	Eyebolt, M16 x 2	3	3	1	-	-	1	1	3	-
8T-4223	Washer	3	3	-	-	-	-	-	3	-

Brake and Steering Systems

Hydraulic System Tools

Hydraulic Component Disassembly and Assembly

Motor Grader Controls, Cable Control and Winch

Loader Lift Arm and Excavator Implement

Implements, Frame, Hitch and Suspension

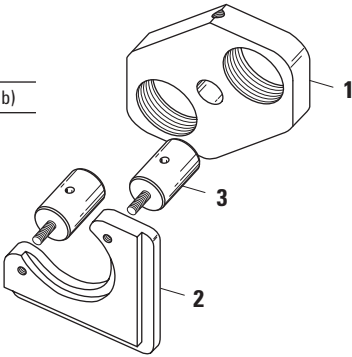
Boom Foot Pin Removal Tools

SMCS Code: 5456-011
Model: 365B, 365C, 365D Excavators
Essential Tool
Warranty: Six Months

Combination weight without hydraulic cylinder	47.48 kg (105.4 lb)
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NEW TOOL

- Used to remove 208-1941 Pin from lower boom foot
- Used with two 360-6960 Cylinders (50 Ton), one 9U-6812 Puller Stud [M48 x 5.0 by 381 mm (15.00 in) long], and one 9U-6903 Fast Runner Nut (M48 x 5.0) or 9U-6810 Fast Runner Nut (M48 x 5.0)
- Hydraulic power supply is also required
- All tools are sold separately; requires one 369-3528 Puller Plate, one 369-3530 Pusher Plate, and two 369-3531 Spacer Assembly
- A 9M-4021 Eyebolt (1-8 in) threads into puller plate to support weight of cylinders and pusher plate
- Tools are symmetrical and can be used to remove both right and left side pins
- All parts are heat treated for added durability



Item	Part No.	Description
1	369-3528	Puller Plate
2	369-3530	Pusher Plate
3	369-3531	Spacer Assembly

Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and Assembly

Motor Grader Controls,
Cable Control and Winch

Loader Lift Arm and
Excavator Implement

Implements, Frame,
Hitch and Suspension

336-6457 Socket

SMCS Code: 7107-011, 7107-012

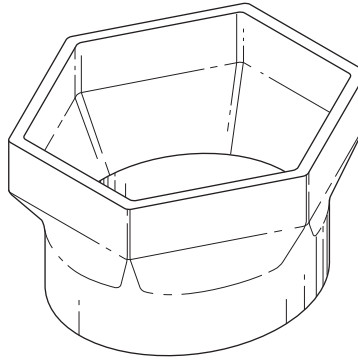
Model: TS220 Towed Scraper

Essential Tool

Warranty: Six Months

NEW TOOL

- Used to disassemble and assemble rear horizontal hitch
- 4 $\frac{3}{8}$ inch, 6-point socket
- $\frac{3}{4}$ inch square drive
- Welded steel construction
- Not recommended for use with impact wrench



Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and Assembly

Motor Grader Controls,
Cable Control and Winch

Loader Lift Arm and
Excavator Implement

Implements, Frame,
Hitch and Suspension

334-1071 Adapter

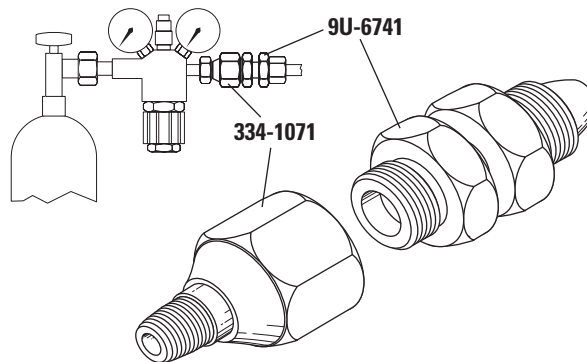
SMCS Code: 0647, 4263-045, 5077-036, 5081, 6333, 7201-045
Model: E180, EL180, EL240, EL300, MS120-B, MS180 LC-8, MS300-5,
MS300 LC-8, 214B and 224B Excavators. CB-314, CS-551,
CP-323, and CS-323 Compactors

Essential Tool

Warranty: Six Months

NEW TOOL

- Used to connect charging hose to nitrogen regulator
- Used with 9U-6741 Adapter and 9U-6740 Accumulator Charging Kit
- Maximum pressure: 20,684 kPa (3000 PSI)
- W24.32 x $\frac{1}{4}$ internal threads (DIN 477 #10 Type A, nitrogen) and $\frac{1}{4}$ NPT external threads
- Solid brass construction



Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and Assembly

Motor Grader Controls,
Cable Control and Winch

Loader Lift Arm and
Excavator Implement

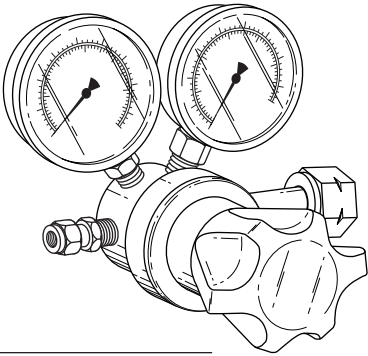
Implements, Frame,
Hitch and Suspension

338-0500 Regulator Assembly

SMCS Code: 0647, 5077-036, 6333, 5081, 7201-045, 4263-045
Model: All Caterpillar machines
Essential Tool
Warranty: Six Months

NEW TOOL

- Used to charge accumulators with high-pressure nitrogen gas requirement of 400 Bar (6000 PSI)
- Used with 346-3622 Pop-off Valve and 175-5507 Nitrogen Charging Group
- Single-stage, high-pressure regulator
- One piece encapsulated valve design with CTFE seats and an internal filter
- Delivery and supply pressure gauges have dual readings (PSI/BAR)
- Easy-to-read gauges are 63.5 mm (2.50 in) diameter



Maximum inlet pressure	500 Bar (7500 PSI)
Delivery pressure range	689 Bar (10,000 PSI)
Supply pressure range	689 Bar (10,000 PSI)
Inlet connection	CGA 677
Outlet connection	¼ inch NPT stainless steel Swagelock tube fitting
Overall size	77 x 158 x 127 mm (7.0 x 6.2 x 5.0 in)

Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and Assembly

Motor Grader Controls,
Cable Control and Winch

Loader Lift Arm and
Excavator Implement

Implements, Frame,
Hitch and Suspension

347-1694 Spanner Wrench

SMCS Code: 6606-011

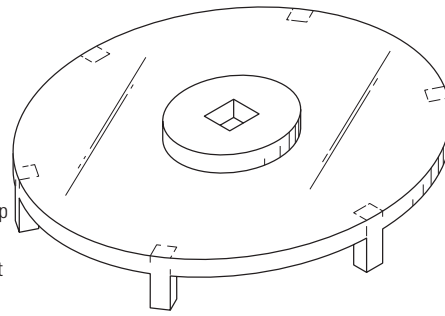
Model: CB-534D, CB-534DXW Vibratory Compactor

Essential Tool

Warranty: Six Months

NEW TOOL

- Used to remove and install 267-5641 Nut, which is part of 303-8755 Eccentric Weight Group
- Used with 206-8796 Torque Multiplier, 1½ inch square drive
- 40.7 cm (16.0 in) diameter tool with six equally-spaced teeth to securely engage special nut
- Teeth are hardened to handle high torque from multiplier
- Made from durable, welded-steel construction with black oxide coating for corrosion resistance



Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and Assembly

Motor Grader Controls,
Cable Control and Winch

Loader Lift Arm and
Excavator Implement

Implements, Frame,
Hitch and Suspension

FT3137 Guide Support

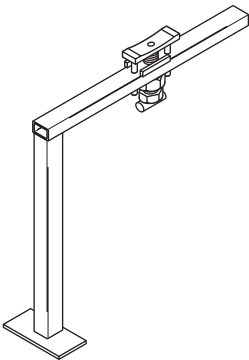
SMCS Code: 6640-011
Model: AS3173 Screed (Used with AP300 Paver)
Warranty: None

NEW TOOL

- Used to support sliding guides on extender side of screed
- Used during disassembly and assembly
- Welded steel construction
- Adjustable support plate

Reference

QENR2078, Service Manual, AS3173 Screed, Disassembly and Assembly



Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and Assembly

Motor Grader Controls,
Cable Control and Winch

Loader Lift Arm and
Excavator Implement

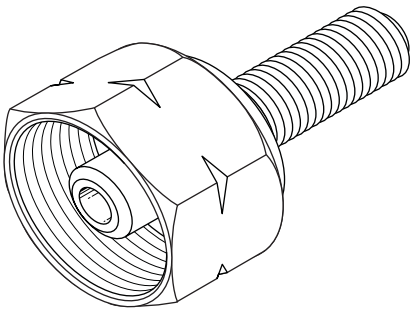
Implements, Frame,
Hitch and Suspension

334-0802 Nipple Assembly

SMCS Code: 0647, 5077-036, 6333, 5081, 7201-045
Model: Caterpillar Excavators and Track-Type Tractors
Essential Tool
Warranty: Six Months

NEW TOOL

- Used with 338-0500 Pressure Regulator and high pressure nitrogen gas bottle
- 1/4 inch NPT male end connects to 41,368 kPa (6000 PSI) pressure regulator
CGA677 female end connects to 41,368 kPa (6000 PSI) high pressure nitrogen gas bottle
- Durable stainless steel construction



Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and Assembly

Motor Grader Controls,
Cable Control and Winch

Loader Lift Arm and
Excavator Implement

Implements, Frame,
Hitch and Suspension

345-1236 Lifting Bracket Assembly

SMCS Code: 6604-011, 6605-012, 4050-011, 4084-011
Model: CB54, CB54 Series XW, and CB64 Vibratory Compactor

Essential Tool

Warranty: Six Months

European Union compliant, CE marked

Working load limit	567 kg (1250 lbs)
Overall size (L x H x W)	387.4 x 409.6 x 95.2 mm (16.12 x 15.25 x 3.75 in)
Weight	12 kg (26.0 lbs)

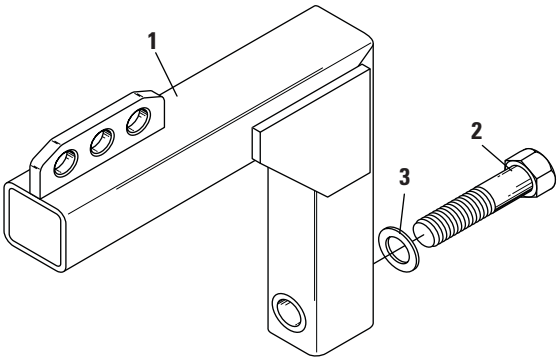
NEW TOOL

- Used to remove and install compactor drum support plates and final drive
- Used with 7X-2581 Bolt - M30 x 100 mm (4.0 in) long, 9X-8258 Washer - M30, and two guide bolts (all dealer supplied)
- Bolt and washer are used to attach lifting bracket to compactor drum support plate
- A suitable overhead lifting device and 189-0410 Screw Pin Shackle are required to support and raise lifting bracket and compactor drum support plate
- A three-hole shackle mounting plate allows adjustable center of gravity, to balance load during installation
- Durable welded steel construction

Reference

NEHS1088, Tool Operating Manual, 345-1236 Lifting Bracket
KENR5997, CB54, CB54 Series XW, and CB64 Vibratory Compactor

Item	Part No.	Description	Qty.
1	345-1236	Lifting Bracket	1
2	7X-2581	Bolt, M30 x 100 mm (3.94) length	1
3	9X-8258	Hard Washer, M30	1
Not shown			
	189-0410	Screw Pin Shackle	1
	—	Guide Bolt	2



Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and Assembly

Motor Grader Controls,
Cable Control and Winch

Loader Lift Arm and
Excavator Implement

Implements, Frame,
Hitch and Suspension

332-7591 Sleeve Assembly

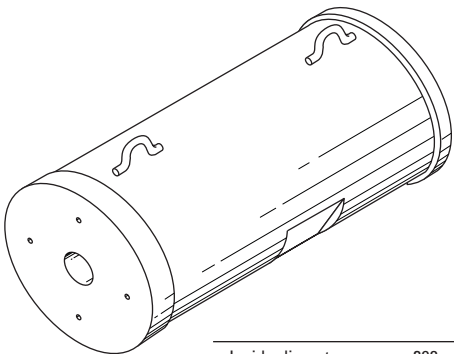
SMCS Code: 7051-776, 7051-777
Model: 993K Wheel Loader
Warranty: Six Months

NEW TOOL

- Used to remove lower articulation flagged hitch pin
- Used with 316-1491 or 6V-0014 Hydraulic Cylinder Group, 3S-6224 Electric Hydraulic Pump Group, 9U-6815 Puller Stud, and 9U-6810 Speed Nut
- Hydraulic removal of pin is preferred over other methods, such as burning, cutting, or drilling
- Heat-treated for added durability

Reference

KENR5832, 993K Wheel Loader Machine Systems, Disassembly and Assembly, Loader Frame from Rear Frame - Separate



Inside diameter	298 mm (11.73 in)
Overall length	736 mm (28.98 in)
Flag opening	220 mm (8.66 in)
Hole for threaded rod	70 mm (2.76 in)

Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and Assembly

Motor Grader Controls,
Cable Control and Winch

Loader Lift Arm and
Excavator Implement

Implements, Frame,
Hitch and Suspension

Swing Drive Sleeves

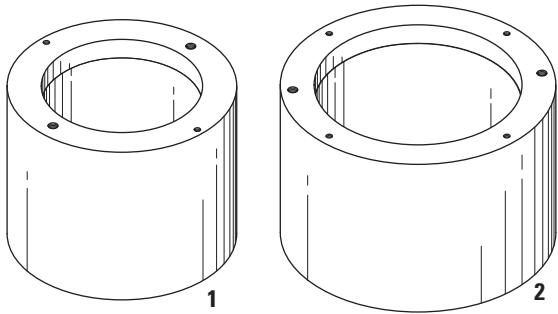
SMCS Code: 5459-015
Model: 318C, 320C, 321C, 323C, and 345C Excavators
Essential Tool
Warranty: None

NEW TOOL

- Used to disassemble excavator swing drive lower bearing
- Used with standard shop press
- Prevents damage to lower bearing seal cage
- Made from SAE1020 steel

References

KENR5272, 315D and 319D Excavators, Machine Systems, Disassemble and Assemble
KENR6016, 320D FM Excavator, Machine Systems Disassemble and Assemble
REN8614, 320D Excavator, Machine Systems, Disassemble and Assemble
REN8649, 320D RR Excavator, Machine Systems, Disassemble and Assemble
KENR8110, 320D RR FM Excavator, Machine Systems, Disassemble and Assemble
REN7500, 323D Excavator, Machine Systems, Disassemble and Assemble
KENR5988, 330D Forest Machine, Machine Systems, Disassemble and Assemble
REN8612, 345C Excavator, Machine Systems, Disassemble and Assemble
REN8610, 345C Material Handler, Machine Systems, Disassemble and Assemble
KENR6438, 345C MHPU Mobile Hydraulic Power Unit, Machine Systems, Disassemble and Assemble
REN9574, 345D Excavator, Machine Systems, Disassemble and Assemble
REN8616, 365C Excavator, Machine Systems, Disassemble and Assemble
KENR8120, 365C MHPU Mobile Hydraulic Power Unit, Machine Systems, Disassemble and Assemble



Item	Part No.	Description	Use
1	FT3023	Swing Drive Sleeve	on machines equipped with 148-4636 Pinion Shaft
2	FT3157	Swing Drive Sleeve	on machines equipped with 227-6108 Pinion Shaft

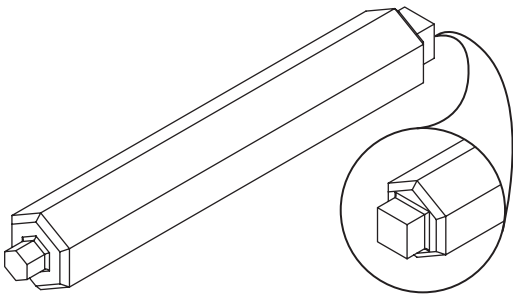
Brake and Steering Systems
Hydraulic System Tools
Hydraulic Component Disassembly and Assembly
Motor Grader Controls, Cable Control and Winch
Loader Lift Arm and Excavator Implement
Implements, Frame, Hitch and Suspension

FT3160 Driver

SMCS Code: 6606-011
Model: CB-534D, CB-534DXW Vibratory Compactor
Essential Tool
Warranty: None

NEW TOOL

- Used to remove and install 267-5641 Nut, part of 303-8755 Eccentric Weight Group
- Used with 127-8458 Final Drive Bench and 347-1694 Spanner Socket
- Make from 128-4075 Hex Shaft Assembly
- Transmits hydraulic force of final drive bench to spanner socket to loosen or tighten nut on eccentric weight group
- Square drive end engages spanner socket while large hex shaft engages final drive bench drive plate



Length	455.4 mm (17.93 in)
Square drive	37.34 mm (1.47 in)
Main shaft hex	76.2 mm (3.00 in)
Shaft end hex	28.11 mm (1.11 in)

Reference

KENR6010, CD54 Vibratory Compactor, Machine Systems, Disassembly and Assembly, Eccentric Weight
NEHS0673, Tool Operating Manual, 127-8458 Final Drive Disassembly and Assembly Bench

Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and Assembly

Motor Grader Controls,
Cable Control and Winch

Loader Lift Arm and
Excavator Implement

Implements, Frame,
Hitch and Suspension

FT3119 Pressurizing Grease Gun

SMCS Code: 5102-010, 6001-011, 6119-011

Model: 993K Wheel Loader

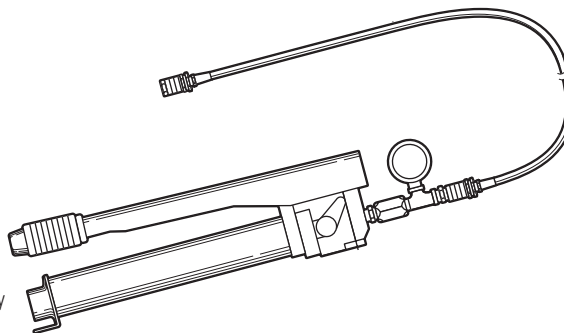
Warranty: None

NEW TOOL

- Used to pressurize linkage pin bore during linkage pin removal
- Reduces amount of tonnage (force) required to remove linkage pins
- Allows pressurized grease [not to exceed 68,948 kps (10,000 psi)] to fill lift arm bore to help remove linkage pin
- High-pressure, quick disconnect attaches grease gun to fitting installed in linkage
- Certified pressure gauge shows pressure of grease in linkage pin bore and can be used to verify that all pressure has been released
- Made from:
 - 8F-9866 Grease Gun Assembly
 - 5P-3238 Hex Pipe Nipple
 - 3J-1907 O-Ring Seal
 - 006-0210 Pipe Tee
 - 186-2613 Pressure Gauge
 - 187-3546 Quick Disconnect Coupler
 - 5P-3501 Pipe Adapter
 - 8F-0024 Hose Assembly
 - 187-3547 Nipple

Reference

KENR5832, 993K Wheel loader, Machine Systems, Disassembly and Assembly



Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and Assembly

Motor Grader Controls,
Cable Control and Winch

Loader Lift Arm and
Excavator Implement

Implements, Frame,
Hitch and Suspension

FT3126 Receiver Sleeve

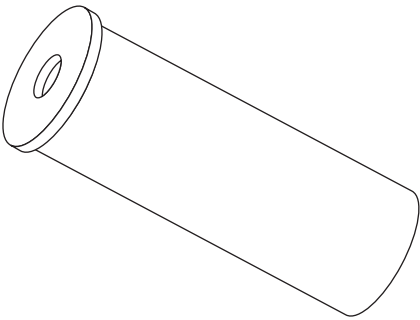
SMCS Code: 7230-011
Model: 793F, 795F AC, and 797F Off-Highway Trucks
Warranty: None

NEW TOOL

- Used to help remove link pins on rear suspension upper and lower suspension links
- Used with 3S-6224 Electric Hydraulic Pump Group, 9U-6815 Puller Stud, 7Y-1460 Nut, and 5P-5201 Double Acting Cylinder
- Made from SAE 1020M Steel

Reference

KENR8382, 797F Off-Highway Truck, Machine Systems, Disassembly and Assembly
KENR8727, 795F series AC Off-Highway Truck, Machine Systems, Disassembly and Assembly
KENR8579, 793F Off-Highway Truck, Machine Systems, Disassembly and Assembly



Overall length	549.28 mm (21.625 in)
Inside diameter	171.45 mm (6.750 in)
Tube wall thickness	9.525 mm (0.375 in)
End plate diameter	215.9 mm (8.50 in)
End plate thickness	19.05 mm (0.750 in)
End plate center Opening	50.8 mm (2.00 in)

Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and Assembly

Motor Grader Controls,
Cable Control and Winch

Loader Lift Arm and
Excavator Implement

Implements, Frame,
Hitch and Suspension

361-3889 Nitrogen Charging Group

SMCS Code: 7201-045
Model: Most Caterpillar Machines
Warranty: Six Months

NEW TOOL

- Used to charge accumulators with pressures up to 20,666 kPa (3000 PSI)
- Not included in group are pressure regulator and pressure gauge (must be locally purchased to meet regulations and certifications for use in Australia)
- Quick disconnect couplings allow gauge to be changed quickly and easily

Reference

NEHS0742, Tool Operating Manual

NOTICE

The 361-3889 Group is not recommended for tire inflation because of the associated higher pressures and increased line flow restrictions.

Size	25 x 25 x 52 mm (.98 x .98 x 2.04 in)
Weight (estimated)	10.3 kg (22.7 lb)

Part No.	Description
1S-8937	Needle Valve
1S-8938	Air Chuck
1S-8941	Hose Assembly
2D-7325	Pipe Tee
2P-8289	Holder Block
2S-5244	Nipple
7S-5106	Chuck
8S-1506	Disc Coupling Assembly, MPT
8S-4599	Coupling Assembly
8S-4600	Nipple FPT
8S-5098	Warning Film
162-4147	Hose Assembly
334-4572	Tool Box

Brake and
Steering Systems

Hydraulic System Tools

Hydraulic Component
Disassembly and Assembly

Motor Grader Controls,
Cable Control and Winch

Loader Lift Arm and
Excavator Implement

Implements, Frame,
Hitch and Suspension